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DEPARTMENT OF NATURAL RESOURCES
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DIVISION OF GEOLOGICAL SURVEY

1987 REPORT ON OHIO MINERAL INDUSTRIES

WITH

DIRECTORIES OF REPORTING
COAL AND INDUSTRIAL MINERAL OPERATORS

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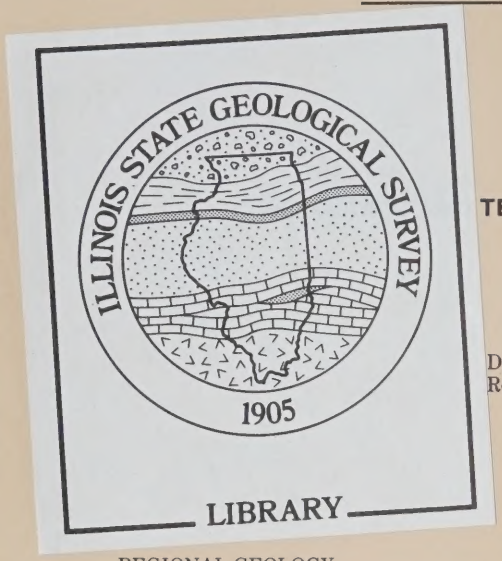

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1987 REPORT ON OHIO MINERAL INDUSTRIES

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compiled by

Sherry W. Lopez

Columbus
1988

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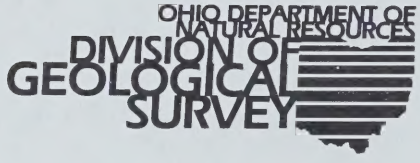

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Cover photo: Cenospheres—microscopic, hollow, gas-filled particles of fly ash produced by many coal-fired power plants. See article on fly ash beginning on p. 1. Photo courtesy of American Electric Power Service Corporation

FOREWORD

The most notable change concerning the 1987 *Report on Ohio mineral industries* is the purchase of a new Honeywell PC-XP personal computer system, printer, and modem. The Honeywell system compiles all of the information published in this report more efficiently, in terms of time and expense, than did the previous computer system. The software used is called *enable*, an integrated software system which provides five major computer applications: word processing, spreadsheet, graphics, database management, and telecommunications. All of the information contained in this report is stored in databases. This storage allows for easy manipulation of the data into whatever format is needed. Thus, the report can be compiled in much less time than before. Users of the report can also benefit from the computer system by requesting coal and/or industrial-mineral data in any form or quantity needed during the year and receive a computer printout of the data requested. The question probably now being asked is, "If this computer system allows for faster data compilation, why is the 1987 *Report on Ohio mineral industries* being released later than last year?" Anyone who has a computer probably knows the answer. It takes a fair amount of time to get a computer system "on line" before data entry and compilation can take place. In future years, the efficiency of the computer system will become apparent.

There are also two more changes plus two additions to the 1987 *Report on Ohio mineral industries*. One change is in Figure 21, *New wells drilled for oil and gas in 1987, by county*, which now shows the number of new wells drilled and the number of new wells completed instead of the number of new wells drilled and the number of new producing wells. This modification is addressed in more detail in the section on Oil and gas activity. The other change is in Table 30, *Ohio well permits issued vs. number of wells drilled and completed*, which replaces the former table, *Ohio new well completions*. One addition to the report in the section on Oil and gas activity is Table 29, *Ten most active counties in Ohio in 1987*. The other addition is in the directory of reporting coal-washing plants and associated facilities, in which the Division of Reclamation permit number is now included for facilities which have had a permit issued.

Lastly, the inclusion of photographs in last year's *Report on Ohio mineral industries* was so well received that photographs are also included in this year's report. We hope the inclusion of photographs in the *Report on Ohio mineral industries* will become a permanent feature. For this to become a reality, however, more historical and/or present-day coal and industrial-mineral photographs are needed. Any contributions in this area will be greatly appreciated.

Most of the photographs this year were taken on the field trips associated with the Ohio's Mineral Industries Teachers' Workshop, which is sponsored by the Division of Geological Survey and the University of Akron and supported by grants from the Ohio Aggregates Association, Ohio Mining and Reclamation Association, Ohio Oil and Gas Association, and Ohio Coal and Energy Association. This was the second year for the workshop and it was a great success for all who were involved. More workshops across the state are in the process of being planned. For more information regarding the workshops and how other coal and industrial-mineral companies can participate, contact the Division of Geological Survey.

As usual, all of the changes and additions mentioned above were made to increase the usefulness of the report to the public. Any comments on how this report can be made to better serve those interested in mineral products in Ohio are always welcome.

Sherry W. Lopez
Geologist and
Mineral Statistician

Errata for
1986 report
now available
upon request

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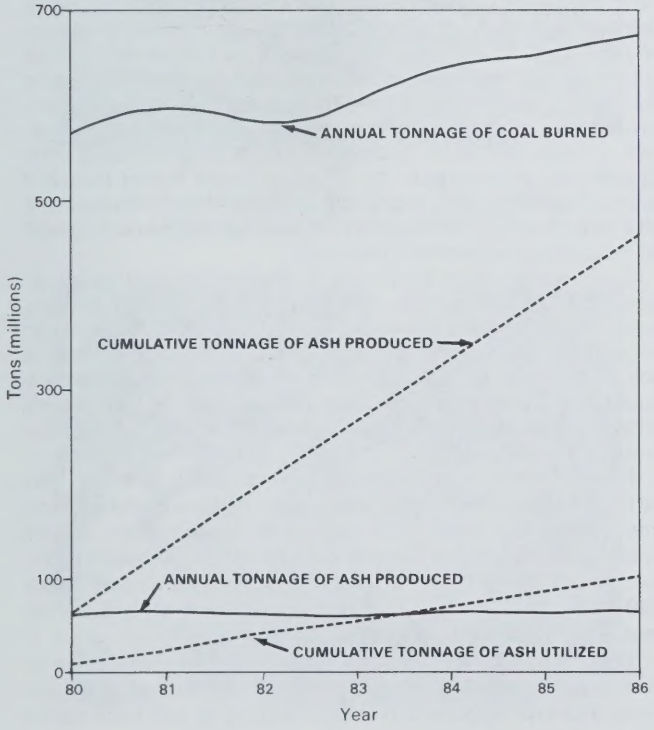
COAL ASH—A GROWING MINERAL RESOURCE

by Guy L. Cerimele, Associate Engineer
and Kay W. Hennis, Marketing Analyst
American Electric Power Service Corporation, Columbus, Ohio

Coal ash is everywhere. Industries worldwide are excited and enthusiastic about the abundant, inexpensive, and readily available supply of coal ash. A partial listing of its major uses include: highway construction, structural fills, mining applications, and snow and ice control. In addition, coal ash can be found in such products as golf balls, roofing shingles, concrete, paints, plastics, bricks, and even bowling balls.

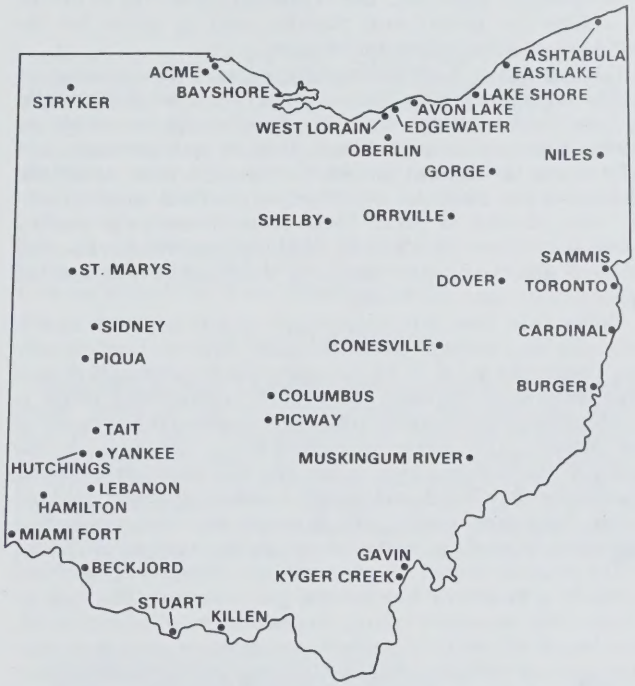
The outlook for coal ash as a mineral commodity is indeed bright. As each year passes, researchers and entrepreneurs are finding even more new and exciting uses for coal ash.

In the United States, the abundance and availability of coal ash are on the rise. The accompanying graph shows that 683 million tons of coal were burned in 1986, resulting in 69 million tons of ash. If all this ash were placed in railcars, the train would extend from Columbus, Ohio, to Atlanta, Georgia. Given the large quantity of coal ash produced annually in the United States, coal ash has become our country's fourth most abundant mineral resource.



Tonnage of coal burned vs. tonnage of coal ash produced in the United States.

Here in Ohio, coal ash is in abundant supply. Ohio's electric utilities are principally responsible for Ohio being the no. 1 coal-consuming state in the nation. During 1986, more than 47 million tons of coal were burned in Ohio, and 5 million tons of ash were produced. The locations of Ohio's major coal-fired power plants are shown on the accompanying map.

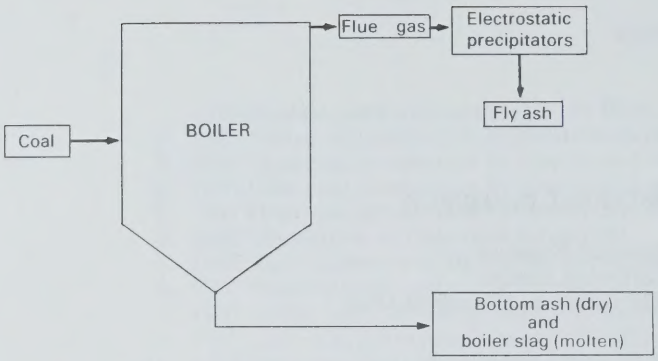


Location of major coal-fired power plants in Ohio.

TYPES OF COAL ASH

The coal ashes produced today are different from those of the days when coal was the principal fuel used to heat homes and fire old types of steam boilers. Today, modern coal-fired power plants burn coal that has been pulverized to the fineness of talcum powder prior to entering the boiler. This process has helped produce ash products that are superior to their forerunners. These products are classified into three distinctive types: fly ash, bottom ash, and boiler slag.

Fly ash is perhaps the best known type of coal ash. It is a powdery material, resembling face powder and made up of tiny separate glass microspheres. Fly ash represents about 65 percent of the total coal ash produced. It is collected



Diagrammatic representation of coal-ash collection.

from the flue-gas streams of power-plant boilers by electrostatic precipitators. The fly ash then is transferred to dry silos or mixed with water and wet-sluiced to settling ponds. Fly ash lends itself to many applications, including the partial replacement of cement in concrete, the manufacture of lightweight aggregate, the replacement of clay in bricks, as a filler for paints and plastics, and as grout for the prevention of coal-mine subsidence.

Bottom ash is a granular material with the same upper and lower particle-size limits as concrete sand. It is angular in shape and ranges in color from medium brown or medium gray to almost black. Bottom ash is sometimes referred to as dry-bottom ash because it comes out of the bottom of the boiler in dry chunks. It is then crushed and wet-sluiced and in most cases transferred to a settling pond. Bottom ash is typically used as construction backfill, a snow- and ice-control abrasive, drainage media, and an aggregate in concrete block.

Boiler slag, the third major type of ash product, also is granular and angular with a slightly coarser particle size than concrete sand. It has a shiny black color and is best described as a crushed black glass. Boiler slag often is referred to as wet-bottom boiler slag because it pours out of the bottom of the boiler in molten form. Dripping into the water in the bottom of the boiler, the slag disintegrates then crystallizes to a hard and abrasive material. Major uses for boiler slag are as blasting grit, granules for roofing shingles, aggregate in asphalt, and a snow- and ice-control abrasive.

The growth of coal ash as a valuable mineral resource is partially a result of the federal government's attempt to reduce this country's energy dependence on imported oil. As a result of the 1973 Arab oil embargo, many oil- or gas-fired electric utilities switched to coal as an alternative fuel for firing steam-producing boilers. Coal is today the principal fuel for the production of electricity in the U.S.

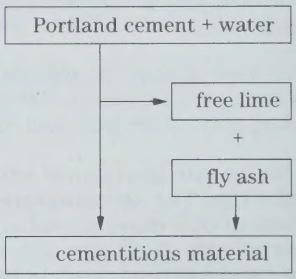
However, even before the Arab oil embargo, the nation's coal-fired electric utilities had seen the need for gainful utilization of coal ash as an alternative to disposal. For instance, as far back as 1965, the American Electric Power System (AEP) formed an Ash Utilization & Research Section. In 1966, AEP and a number of other electric utilities established the National Ash Association (later the American Coal Ash Association) to promote the use and acceptance of coal ash by industry and governmental agencies. Endeavors such as these have helped electric utilities hold the line on operating costs.

Nationally, about 22 percent of all coal ash produced is sold or used internally in utility construction. This figure is almost double the 12 percent utilization figure for 1966, when the American Coal Ash Association first began to compile such data.

USES OF FLY ASH

Most of the coal ash utilized today is fly ash. Uses for fly ash are grouped into cementitious, land, and processed applications. Cementitious applications first were demonstrated by the Romans as early as 312 B.C. Roman engineers made a strong and durable concrete from certain volcanic ashes (chemically similar to fly ash), quicklime, water, and stone. Structures such as the aqueducts, the Appian Way, and the Roman Coliseum, which still stand today, are testament to the durability of concrete made with ash.

Today, essentially all concrete is made with portland cement. As portland cement concrete hardens, chemical reactions produce free lime; if fly ash is used in the concrete batch, the free lime reacts with the fly ash to produce additional cementitious material, as diagrammed below. Thus, through the addition of fly ash in concrete, less cement is required to make comparable or even superior quality concrete.



The use of fly ash in concrete results in a less costly concrete that has improved properties such as increased workability and smoothness, increased sulfate resistance, greater ultimate strength, reduced permeability, and lower rate of heat of hydration. Fly ash saves on cost because of the cementing effect of fly ash and free lime in the presence of moisture. Thus, fly ash is a natural choice for use in grouts to prevent mine subsidence, stabilization of various sludges, construction of lime-fly ash-aggregate pavements, production of all types of concrete products, and stabilization of most soil types. Notable modern projects built with fly ash concrete include the Chicago Sears Tower (world's tallest building) and the stack at Ohio Power Company's Mitchell Plant on the Ohio River (one of the world's tallest freestanding concrete structures).

Land applications for fly ash include strip-mine reclamation and structural fills. Depending on the coal source, some fly ashes are alkaline; when combined with acidic soils, these alkaline fly ashes result in a chemically neutral soil. This neutrality, in turn, helps allow formerly barren land to support plant life. The photos of the Duck Creek strip-mine reclamation project near Caldwell, Ohio, illustrate this use.

Fly ash, when combined with 15 to 25 percent water, can be compacted to form structural fills or highway subgrades. For example, at Mt. Carbon, West Virginia, the Adena housing development is built on top of 800,000 tons of fly ash structural fill (see photo). In Pittsburgh, more than 290,000 cubic yards of fly ash are being placed in an engineered roadway subgrade.

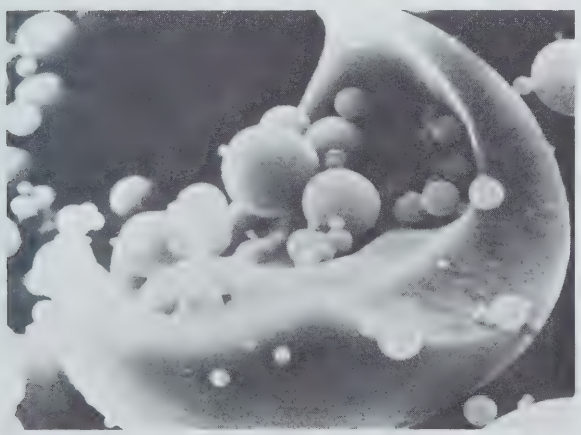
The versatility of fly ash is evidenced by its wide array of miscellaneous and processed applications. An example of a miscellaneous application entails mixing fly ash with sands in some areas of the country that are deficient in the finer size fractions. Adding fly ash in the needed finer sizes improves the performance of such sands in asphalt. Processed

Before (looking due east)

After (looking due west)

Before and after photos of the Duck Creek reclamation project near Caldwell (Noble County), Ohio, completed in 1983.

Adena subdivision in Mt. Carbon, West Virginia, built in 1977 on fly ash structural fill.



Fly ash from many coal-fired power plants contains cenospheres—microscopic, hollow, gas-filled particles, shown here highly magnified.

applications include the recovery and size classification of fly ash particles that float on settling ponds at power plants. Referred to as cenospheres (see photo), these "floating fly ashes" are microscopic, hollow, lightweight spheres. They are used principally as a filler in plastics, vinyls, fiberglass, and speciality coatings. Products made with cenospheres include paint-brush handles, bowling balls, automobile consoles and dashboards, heat-resistant coatings, automobile undercoatings, and even football helmets. Some owners of 1984 Corvettes are surrounded by cenospheres imbedded in the fiberglass body.

USES OF BOTTOM ASH

Bottom ash has been used for years as an aggregate in many types of construction-related applications. These uses include road-base material in highway construction, backfill material under concrete slabs, drainage aggregate behind retaining walls and under coal piles, and as a partial or total replacement for aggregate in concrete block (see photo). Bottom ash also can be used as a daily cover for sanitary landfills and can be blended with coal-mine refuse to lower its acidity.

Bottom ash was used as an aggregate in split-face and regular block at this Giant Eagle Shopping Store in Morgantown, West Virginia.

When used in road-base construction, bottom ash is typically stabilized with cement. The physical properties of bottom ash allow for easy mixing, hauling, and spreading of the cement-treated material. Its lower unit weight makes it economically attractive owing to greater yields per ton than conventional aggregates. Additionally, the material compacts well and maintains stability. More than 300 miles of roads in West Virginia were upgraded with cement-treated bottom-ash base in the late 1970's.

Over 30,000 tons of bottom ash were used as subbase aggregate in traffic-barrier construction on I-70 near St. Clairsville (Belmont County), Ohio.

USES OF BOILER SLAG

Boiler slag, coal ash that resembles black crushed glass, is in strong demand by industry. Most power plants producing boiler slag have contracts to supply it to companies that process the slag into roofing granules or blasting grit. Boiler slag is used as the granule material in black roofing shingles as well as in the head lap, which is covered in the overlapping of shingle rows, in nonblack shingles.

Boiler slag makes an excellent blasting grit owing to its hardness and angularity. In recent years, it has gained a substantial share of the blasting-grit market. This increased use is due, in part, to health and safety regulations that have restricted the use of silica sand as a blasting grit. Thousands of tons of boiler slag produced in Ohio end up being used to "sand blast" ships at the U.S. Naval Shipyards in Norfolk, Virginia.

Boiler slag also makes an excellent aggregate in the wearing courses of asphalt road pavement owing to its rich black color and excellent skid resistance. Unlike other aggregates, boiler-slag pavements do not fade to a lighter color when subjected to traffic. Thus, boiler-slag pavements continue to give the appearance of a new road until resurfacing is required. Even cold-mix asphalts are made with boiler slag. Dubbed "ashphalt," these cold mixes are stockpiled and stored until utilized as cold-weather patching material.

As a snow- and ice-control abrasive, boiler slag is preferred by highway departments over other competitive materials because of its dark color, angularity, and particle size. Boiler slag absorbs the sun's energy to melt ice more quickly, provides excellent traction, and does not blow away.

A new and unique utilization for the finer size fraction of boiler slag is as a golf-course bunker material. This application is being used at the new James LaRosa Golf Course in Bridgeport, West Virginia.

THE FUTURE FOR COAL ASH

With all of these applications in place, one would think that the gamut for utilization of coal ash had been covered. However, all of us associated with the coal-ash industry—ash brokers, entrepreneurs, and the utilities alike—are excited and enthusiastic about the future for this product. This enthusiasm is due to developing uses, the growing national trend toward the conservation of natural resources, and the emphasis that the federal government has placed on the use of industrial by-products that can help reduce our country's energy reliance on foreign oil. Developing uses for coal ash that show great promise include bricks, lightweight aggregate, paints and plastics, and mineral extraction.

The use of fly ash in bricks is an old development that is showing renewed interest. In the late 1960's and early 1970's a process was developed to make common brick from fly ash and bottom ash. The test results exceeded the American Society for Testing and Materials standards for compression, absorption, and freeze-thaw for the best grade of brick manufactured from clay and shale. The bricks were smooth and dimensionally accurate, relatively light in weight, and could be produced economically in most desired colors. Investors were ready to build brick plants using this process; however, the energy shortage of the early 1970's prevented the signing of long-term gas contracts. Thus, this utilization essentially was forgotten for many years.

Today, fly ash bricks are back. Brick manufacturers are proposing the use of fly ash as a partial replacement for clay in the production of all types of bricks. This process will lower the raw-material costs and reduce kiln firing times, resulting in an energy cost saving to the manufacturer. Because the fly ash lessens the weight of the brick, an additional saving is realized through lower shipping costs.

Renewed attention also is being given to the use of fly ash in the manufacture of lightweight aggregate. This interest is due to a number of new production processes that are proving cost effective. Fly ash offers good consistency in process mixing, provides high yields, and improves the strength of lightweight aggregate while reducing the weight. Its cost to the user on a per-unit-weight-of-concrete-product basis compares favorably with the least expensive aggregates (slags), and its quality compares with the most costly aggregates (expanded, graded shales).

The use of fly ash in paints and plastics has emerged as a viable and high-growth development. During 1986, the paint and plastics industries consumed approximately 2.6 million tons of mineral fillers. With the average price of the most extensively used mineral fillers (*i.e.*, chalk, clay, and talc) at $130/ton, a much more economical filler could greatly decrease formulation costs for the paint and plastics industries.

Independent laboratory testing of paints made with fly ash as a mineral filler have exhibited superior hiding power, flowability, and surface durability. In tests of plastics, fly ash imparts excellent compressive and flexural strength, flowability, and surface finishes. In both paints and plastics, fly ash can provide manufacturers with substantial cost savings.

Today, paints and plastics containing fly ash are being tested in demonstrations at selected Ohio power plants. The results to date are very positive, and we expect that commercial production will follow in the very near future.

Another exciting future use for fly ash is as a source of

minerals. Mined magnetite (a form of iron oxide) over the past several decades has been employed in applications ranging from use as a heavy-medium suspension in cleaning impurities from coal to use as toner for copying machines. Because some fly ashes may contain upwards of 5-10 percent magnetite by weight, research to extract and market this magnetite has been carried on for many years. New processes utilizing ultrasound techniques may prove viable for extracting marketable and consistently good quality magnetite from fly ash.

Today, imported bauxite is the primary and cheapest source of alumina (aluminum oxide), the raw material from which aluminum is made. But if bauxite-producing countries demand substantially higher prices, fly ash could become a very important domestic source; some fly ashes contain 30 percent or more alumina. Some power plants produce enough high-alumina fly ash to produce about 140,000 tons of pure aluminum annually.

Coal ash also can yield high purities of other minerals such as sodium, potassium, titanium, and phosphorus. As our country's natural resources both diminish in availability and increase in cost, the economics of extracting these minerals from coal ash will become even more attractive.

From an environmental standpoint, coal ash has been long misunderstood owing to negative connotations generally associated with industrial by-products. Cognizant of these misunderstandings, many utilities have established routine ash-testing programs to characterize both physically and chemically the ash produced by their power plants. These test data are used to determine the suitability of the ash for the use intended.

Coal ash is chemically similar to a typical Ohio clay, as the analytical comparison below indicates. In fact, coal ash is essentially a calcined or fired clay.

COMPARISON OF TYPICAL CHEMICAL ANALYSES OF COAL ASH AND CLAY

	Percent by weight	
	Ash	*Clay*
Silicon dioxide (silica) (SiO_2)	58.6	60.1
Aluminum oxide (alumina) (Al_2O_3)	31.9	15.0
Iron oxide (Fe_2O_3, Fe_3O_4)	3.5	7.4
Titanium dioxide (TiO_2)	1.6	0.9
Calcium oxide (CaO)	0.7	1.5
Magnesium oxide (MgO)	0.8	1.2
Sodium oxide (Na_2O)	0.3	0.8
Potassium oxide (K_2O)	2.8	3.1
Phosphorus pentoxide (P_2O_5)	0.2	0.5
Sulfur trioxide (SO_3)	0.1	0.1
Loss on ignition	1.0	8.9

The future for the increased utilization of coal ash is indeed bright. Its abundance, ready availability, economy, and environmental compatibility translate into industrial, utility, and civic benefits that are gaining greater awareness by all.

Industries are benefiting from reduced raw-material costs by substituting ash for more costly traditional materials. Utilities are benefiting from lower operating costs as a result of lower ash-disposal costs. Lastly, the general public benefits from lower construction costs for taxpayer-funded public improvement projects, the preservation of our country's natural resources, and the conservation of land. In essence, the growth of coal-ash utilization is a win-win situation for all!

PETROGRAPHIC PREDICTION OF PYRITIC SULFUR REDUCTION IN COAL

by Dr. Richard W. Carlton, Geologist
Ohio Department of Natural Resources, Division of Geological Survey

INTRODUCTION

One of the major economic goals challenging Ohioans today is the development of coal technologies necessary to reduce the sulfur content of Ohio's abundant coal reserves. The Division of Geological Survey has several areas of coal expertise which can benefit the coal industry as new coal-cleaning methods are developed. This article concerns automated microscopic techniques being developed at the Division of Geological Survey to evaluate the washability characteristics of Ohio coal.

Generally, most of the sulfur in Ohio coal occurs in either pyritic or organic forms. Pyritic sulfur includes sulfur found in the minerals pyrite and, to a much lesser extent, marcasite, both of which have the same chemical formula (FeS_2). Pyrite can be observed in the coal outcrop on fresh surfaces as bright, metallic-yellow nodules, cleat (fracture) fillings, and discontinuous beds. Through the lens of a powerful microscope, polished specimens of pyrite embedded in coal appear as distinct grains, framboids (clusters of spherical grains resembling a raspberry), cell fillings in coalified plant fragments, replacements of organic material, and as irregular porous masses (see photo). Coarse pyrite—pyrite greater than about 28 mesh[1] (0.023 inch)—is easily removed from the coal by traditional coal-washing methods, but as pyrite particle size decreases to sizes detectable only by microscopic examination, the techniques necessary to remove it become increasingly difficult and costly. Organic sulfur, which generally makes up roughly one-half of the total sulfur content of Ohio coal, is chemically bonded in the coal structure and cannot be observed by microscopic examination of the coal nor removed by either traditional or advanced physical coal-cleaning methods. The Division's coal petrography research program is presently directed toward the development of microscopic methods for prediction of pyritic sulfur reduction.

COAL WASHING IN THE LABORATORY

Prior to full-scale commercial washing, coal washing on a laboratory scale is routinely used to determine the potential amounts of various impurities, especially pyrite and other mineral matter, that can be removed from the raw coal by washing. The technique most commonly employed is called a float-sink test. In this procedure a crushed coal sample is introduced into baths of heavy liquids with different specific gravities. In theory, clean coal "floats" to the top of the liquids and the mineral matter, including pyrite, "sinks." From three to nine liquids, each with a slightly different specific gravity, may be used. Using heavy liquids with specific gravities in the range of 1.30 to 1.40 generally results in a very clean coal float, but for most Ohio coals, yield or recovery (percent of the total coal sample that floats) will be low. Liquids with higher specific gravities

Micrograph of the polished surface of a coal pellet. The "bright" material in the center of the photo is framboidal pyrite associated with shardlike coal particles known as fusinite. Pyrite of this size and morphology is easily oxidized when exposed to air and is one of the main causes of acid mine drainage.

(1.60 to 1.90) will float the clean coal as well as many of the coal particles contaminated with pyrite and other mineral matter. Thus, using the heavier liquids will result in a high coal yield, but the washed coal will be of poorer quality. Several different top sizes (size below which all of the coal has been crushed) of coal may be float-sink tested because experience has shown that as a particular coal is crushed to finer top sizes, more ash and pyrite may be liberated. Eventually the optimum top size will be reached beyond which finer grinding will no longer release significantly more ash and pyrite. Coal washed in Ohio today rarely is ground to this optimum top size. In most advanced physical coal-cleaning (APCC) processes presently being developed in Ohio and elsewhere, coal must be crushed to very fine top sizes, ranging anywhere from minus 28 mesh to minus 200 mesh (0.023 to 0.003 inch). Unfortunately, determining washability for minus 28 mesh or finer coal becomes increasingly difficult and costly by float-sink methods because of the very slow settling velocities and poor separation characteristics of finely crushed coal. Thus, there is a need for faster, less costly, and cleaner methods of evaluating the washability characteristics of coal.

DIVISION OF GEOLOGICAL SURVEY RESEARCH

In the early 1980's the Division of Geological Survey received a grant from the Ohio Air Quality Development

[1]Mesh refers to the diameter of the opening in a sieve used to separate different sizes of material. The higher the mesh number, the smaller the opening.

Authority for coal research. One of the main objectives of the grant was to develop a rapid method of predicting coal washability from a sample using automated image analysis (AIA).

Automated image analysis is ideally suited for the microscopic study of pyrite in coal and is simply an automated method of quantitatively measuring selected coal features such as pyrite grain area, diameter, number, shape, and reflectance (brightness or degree to which light is reflected from a polished surface). The Division's image analyzer is capable of detecting 100 different shades of gray and can easily differentiate between pyrite, which is highly reflective and appears almost white, and coal, which is much less reflective and appears medium gray.

In the Ohio Air Quality Development Authority study, apparent pyrite particle sizes were successfully determined using AIA. The data indicated that certain pyrite size characteristics determined by image analysis of coal crushed to a top size of 40 mesh (0.016 inch) could be used to predict the pyritic sulfur reduction determined by physical washing of the same coal crushed and sieved to sizes between ⅜ inch and 28 mesh (0.023 inch) and washed in a heavy liquid of 1.60 specific gravity (Stith and others, 1982). The predictive ability developed in this first study was not very good because the size of the coal analyzed microscopically was not the same as the size washed.

In 1983, a second investigation was begun using 26 samples of 14 to 28 mesh (0.046 to 0.023 inch) coal for both the AIA and the washing analysis. The original results indicated that a good prediction of the potential pyritic sulfur reduction for the coal float could be made by determining the percentage of pyrite less than 24 microns (0.00094 inch) in diameter in the unwashed raw coal (Carlton, 1985). Very recently, these same data were reanalyzed by Mazumdar, Carlton, and Irdi (1988), and an even better method of predicting pyritic sulfur reduction has been developed.

This latest method uses the average and standard deviation of the pyrite grain sizes to predict the pyritic sulfur reduction of washed coal. Standard deviation is a measure of the dispersion or sorting of the pyrite grain sizes. A high standard deviation indicates poor sorting—the coal contains many different sizes of pyrite grains. A low standard deviation indicates the pyrite size distribution is very narrow—most of the pyrite grains are very nearly the same size. A relationship, expressed by an equation, was derived which allows the amount of pyritic sulfur reduction that can be obtained by washing to be predicted from the mean and standard deviation of the pyrite grain size determined by AIA. In general, if the average pyrite particle size is relatively small and the standard deviation is small, pyritic sulfur reduction will be poor. If the average pyrite size is large and the standard deviation small, then pyritic sulfur reduction will be good. Other combinations of average and standard deviation of pyrite grain sizes will result in pyritic sulfur reduction values between poor and good.

These results appear very promising, but many more samples need to be tested to confirm the relationship. A proposal submitted to the Ohio Coal Development Office in November 1987, if accepted, will go a long way toward validating earlier results. If the relationship holds not only for coal crushed and sieved to sizes between 14 and 28 mesh (0.046 to 0.023 inch), but also for finer top sizes, then it will be a relatively simple matter to predict the pyritic sulfur reduction of washed coal using AIA.

As part of the same Ohio Coal Development Office proposal mentioned above, the Division of Geological Survey plans to investigate the possibility of predicting the top size of coal at which the optimum amount of pyrite is released (*i.e.*, the point at which additional grinding will not substantially increase the amount of pyrite that is removed when the coal is washed by gravity-separation methods). The obvious reasons for wanting to know the top size at which optimum pyritic sulfur reduction occurs are (1) grinding smaller than this optimum top size increases the cost of producing the coal through longer grinding time, excessive wear and tear on the grinding equipment, and little or no gain in reduced sulfur content of the coal; and (2) leaving the coal coarser than the top size at which optimum pyritic sulfur reduction occurs may result in a sulfur content that is higher than the minimum that could be obtained in the cleaned coal.

Success with this program will provide a method to (1) predict the optimum size to which the coal should be crushed for greatest release of pyrite, and (2) predict the potential pyritic sulfur reduction of coal ground to any top size below 28 mesh (0.023 inch). It is believed that these predictions can also be made for any specific gravity liquid used to wash the coal, although the prediction equations will differ with each liquid.

In the more distant future the Division hopes to be able to purchase a scanning electron microscope (SEM) and energy-dispersive x-ray (EDX) system to couple with the AIA. This equipment will provide the tools necessary to develop microscopic methods of predicting the potential recovery or yield of coal when washed at specified specific gravities and crushed to given top sizes. Exciting preliminary work in this area has been done by R. Markuszewski and his colleagues at the Ames Laboratory, Iowa State University, Ames, Iowa.

CONCLUSIONS

Work at the Division of Geological Survey suggests that AIA should be able to contribute important information about the washability of coal rapidly, inexpensively, and using only small samples. As APCC technologies are developed, the low cost and high speed at which AIA data are generated, linked with the increasing difficulty, slowness, and high cost of float-sink analyses of finely crushed coal, should make automated image analysis of coal as common as float-sink analysis. Physical and chemical characterization of the state's coal resources is vitally useful to Ohio coal producers. Because of its rapidity and ability to use small samples, AIA has the potential to become a routine element in the characterization of coal samples collected through the Division's ongoing geologic programs.

Much work remains to be done in the field of coal characterization and the development of techniques for rapid, accurate prediction of coal washability. Success in these areas of research, however, will give the Division of Geological Survey a powerful new tool for rapid characterization of Ohio coal seams, at a time when Ohio coal producers, wash-plant designers, and researchers truly need the information.

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CRITICAL MINERAL RESOURCE ZONING

by Raymond J. Martin, Vice President
R. W. Sidley, Inc., Thompson, Ohio

R. W. Sidley, Inc., is a diversified mining company in northeastern Ohio with sand and gravel operations in Lake and Ashtabula Counties. Sidley also has a large silica aggregate operation in Geauga County. In 1982, the company began planning to have its silica deposit classified as a critical mineral resource (CMR) for the purpose of zoning in Thompson Township, in northeastern Geauga County. As far as the company is aware, this CMR zoning classification is the only one for any Ohio county. It is felt that this is a benchmark accomplishment for the mineral industry in the state of Ohio.

Sidley sought the CMR designation because land-use problems facing the company would seriously impair its ability to continue producing silica in Thompson Township. The eastern half of Geauga County is primarily rural in character, while the western half has undergone demographic changes since the 1950's to become a heavily settled residential region. Housing and industrial growth has been centered around the communities of Chardon, Middlefield, Chesterland, Newbury Center, Russell Center, and the eastern borders of Chagrin Falls. In 1987, a contract was let to extend new U.S. Route 422 across Geauga County. This highway will no doubt contribute significantly to population movement into the more rural areas of the county. With this type of potential change in land-use patterns, the need for protecting critical mineral resources becomes more apparent.

When the company started planning for the CMR zoning classification, timing was right. In 1983, Thompson Township started to rewrite and revise existing zoning regulations with the assistance of the Geauga County Planning Commission. The Planning Commission had recently completed a 17-step study to better inform the townships how to write their zoning laws. A CMR districting proposal was presented to the Planning Commission by R. W. Sidley, Inc. The format that the company used was provided by Robert Wilkinson, Managing Director of the Ohio Aggregates Association. The Planning Commission Director, on review of the documents, agreed to the inclusion of a CMR district in the rewriting of the zoning regulations. An explanation of what a CMR districting proposal includes is given below.

GUIDELINES FOR THE LOCAL PLANNING COMMISSION

1. Local government officials should seek to identify and balance the interests of the community and the interests of the mining industry regarding the extraction of critical mineral resources.
2. CMR areas should be identified as a separate use classification so as to permit the orderly extraction of the deposit and the ultimate rehabilitation for sequential use of the land. Local planning commissions should adopt standards to implement sound programs of mineral utilization based on well-thought-out community needs and objectives. The extraction of mineral resources, when done according to a rational plan developed with the aid of the local community, need only cause minimal disruption of the ecology and the quality of life in the community.
3. CMR areas should include those areas that are necessary to meet long- and short-range mineral resource needs and only those areas that will not have a negative influence on the orderly growth and development of a community.
4. All nonmining-related uses of CMR-classified land should require approval from the local approving agency. However, as land is mined and reclaimed for a specific use, its permitted uses could be broadened at the request of the mining company and developed in accordance with site plans and comprehensive community plans developed or approved by the local planning commission.
5. Imposed controls should not infringe upon those property rights of the landowner as guaranteed by the Constitution of this State and the United States.

IDENTIFICATION AND EVALUATION OF CMR AREAS

Identification and evaluation of mineral resource demands and reserves should be included in local planning and zoning processes. Mining companies need to provide accurate and detailed information to local agencies about the mineral deposit, the company's operation, and the significance of the particular mineral resource to the existing and potential market. When evaluating this information, local agencies may request technical assistance from the Ohio Department of Natural Resources.

The acreage to be included in a CMR area should be determined by the following factors: (1) deposit characteristics in terms of depth and distribution, (2) annual production figures, (3) historic production figures, (4) documented production projections, (5) deposit reserves.

The company should also have a map plan of the proposed CMR area showing the following: (1) area requirements for processing plant, (2) excavation areas and depth of these areas, (3) acreages taken up by excavation setbacks and other unmineable areas.

Communities should use the following factors when evaluating a CMR zoning request: (1) availability of the mineral resource (location and extent) in the local area; (2) availability of zoned reserves for future extraction within the market area; (3) total demand for commercial minerals within the market area, including the rate of depletion of reserves within the market area; (4) economic value of the proposed extraction operation.

The use of the following formula can provide the data necessary for determining the significance of aggregate-mineral resource areas by comparing the total resources and production capacity of the proposed mine operation

with the supply and demand for these resources. Determining the size of the CMR area enables local governments to reevaluate land-use priorities around mineral resource areas. The consumption and acreage used here apply only to aggregate operations and cannot be used to forecast needs for other critical mineral resources.

Yearly required acreage =

$$\text{population} \times \frac{9 \text{ tons}}{\text{capita}} \times \frac{0.6 \text{ cu. yds.}}{\text{ton}} \times \frac{\text{acre}}{48{,}400 \text{ cu. yds.}}$$

Per capita consumption is determined by dividing annual production by the population. At the time Sidley's request was made, 9 tons was the annual per capita consumption of mineral aggregate in Ohio. One acre 10 yards deep equals 48,400 cubic yards.

A specific time frame (20 years with 5-year extensions based on updated information) could be set for mining within CMR areas. A 20-year/5-year time frame is proposed because typical planning studies, basic information gathering, economic land use, and population projections are normally conducted within these time frames. This time frame also allows mining companies to program their activities, extend their operations, and adjust to changing conditions. In addition, the credibility of information and recommendations declines rapidly with time.

LOCAL POLICIES

Major conflicts arise when expansion of urban development is directed into an area overlying valuable mineral resources. Development commonly is channelled in a particular direction as a result of public policies such as sewer, water, and transportation programs. Numerous situations illustrate where mine sites, originally in open rural areas, are eventually surrounded by conflicting land uses and forced to shut down. Furthermore, urban expansion in many cases covers the basic building materials needed for urban development.

Local governments, through their public policy decisions, should exercise discretion by not extending public utilities and public facilities such as streets and schools into areas of critical mineral resources. If a community exerts a positive leadership role by locating public infrastructure facilities away from mineral reserves, then private development will not be encouraged to build there.

A separate use category for critical mineral resources is the recommended method of properly managing these resource areas. Mining should be considered the primary use and any use that restricts or interferes with the full utilization of mineral reserves should be prohibited. Temporary or interim uses compatible with future mining, such as farming, recreation, or temporary housing, could be permitted.

Zoning for CMR areas not only provides the opportunity for setting aside valuable mineral reserves for future mining, but also provides flexibility for local agencies to respond to future changes in land-use patterns and to determine whether or not the extraction of mineral resources is a higher priority than some other form of land use.

After extraction of the minerals, the site must be reclaimed as required by Ohio law (Ohio Revised Code, Chapter 1514).

The following public policies for CMR areas should be adopted by the local jurisdiction and incorporated into zoning ordinances or resolutions.

1. Evaluation of mineral resource demands and reserves (including an economic analysis) should be included in local and regional planning processes.
2. Long-range concepts of conservation, extraction, reclamation, and re-use of mineral resource lands should be included in long-range community planning.
3. CMR areas should be identified in existing comprehensive plans.
4. Mineral reserves should be extracted according to a rational plan, calculated to avoid waste of such deposits, avoid pollution, and cause the least practical disruption of the ecology and quality of life in the community.
5. Regulations should be adopted to control mining operations which might significantly detract from the public health, safety, and welfare.
6. Plans and regulations concerning reclamation of mining sites should be adopted to further community objectives. Also, mining operations and subsequent reclamation should strive for physically attractive sites compatible with the surrounding area.
7. Multiple/sequential use of the mineral resource area which would benefit the landowner, neighboring residents, the mining company, and the community as a whole should be considered.
8. Public policy decisions which may serve to encourage development, such as extending sewer lines, water lines, etc., should not be encouraged over valuable mineral reserves.
9. Mining operations should be regulated in an equitable manner.
10. Regulations should be adopted to ensure that CMR areas are protected for the purpose of mining.

EPILOGUE

After Sidley had organized its CMR zoning proposal, three public hearings were held, as required by statute. During these hearings, no objections were voiced against the request for a CMR classification. The company also made many voluntary presentations to local citizen groups during this process, answering their questions on property relationships. The total land holdings of R. W. Sidley, Inc., in Thompson Township amount to approximately 1,500 acres. The company prepared large (2 ft x 3 ft) maps of their holdings to serve as visual aids. These maps showed not only company properties, but all adjoining parcels as well, and addressed questions on property relationships very clearly. These presentations were made by Robert Sidley, Company President; William Gertz, Assistant to the President; and Kevin O'Reilly, company attorney.

Sidley presented its CMR zoning proposal to the Thompson Township Board of Trustees in January 1983. The proposal was accepted in December 1987. A total of 12 to 15 meetings during the evenings and six during the day were held during this time. Tradeoffs during negotiations amounted to an agreement with the Board of Trustees on mining boundaries adjacent to the village. Also, Sidley made a commitment to donate land to the township for park purposes. What is demonstrated here is the importance of establishing a close understanding between all involved parties.

In the final analysis, the time consumed in negotiations was well worth the effort. The CMR zoning classification adopted by Thompson Township closely followed Sidley's original recommendations. The actual document is available to any reader upon request. It is hoped that this is a step in the right direction to preserve valuable mineral resources for future generations.

1987 OHIO MINING ACTIVITIES IN BRIEF

Reports were filed in 1987 for 400 coal-mining operations, of which 294 reported coal production. Reports also were filed for 52 separate coal-washing plants and associated facilities. Of 523 industrial-mineral-mining operations filing reports in 1987, 445 operations reported production. There were 16 mines reporting production of coal and one or more industrial minerals and 24 mines reporting production of multiple industrial minerals (including those mines producing coal and industrial minerals). There were 1,385 new wells completed for oil and gas in 1987, of which 1,278 were productive and 107 were dry.

The total value[2] of coal was $1,004,155,255 in 1987; the value of oil and gas was $637,579,669; and the total value[2] of all nonfuel industrial minerals was $363,440,856 in 1987.

[2]Includes reported and estimated values. Some operations reporting sales did not report a value for those sales. A statewide average price per ton was calculated for each industrial mineral commodity based on sales for which the value was reported. A countywide average price per ton was calculated for coal based on sales for which the value was reported and method of production. These calculated averages were used to estimate the value of the sales for which the actual values were not reported.

TABLE 1.—*1987 Mineral sales and production in Ohio*

Commodity	Production[1]	Sales[2]
Coal	33,152,316 tons	33,321,936 tons
Limestone and dolomite	46,007,936 tons	45,048,244 tons
Sand and gravel	40,465,602 tons	39,666,280 tons
Salt	3,352,760 tons	3,360,613 tons
Sandstone and conglomerate	1,972,626 tons	1,888,899 tons
Clay	1,357,163 tons	1,376,016 tons
Shale	1,993,120 tons	1,999,384 tons
Gypsum	256,307 tons	256,307 tons
Peat	22,764 tons	19,056 tons
Gas	166,592,553 MCF[3]	[4]
Oil	12,152,567 barrels	[4]

[1]The production figures for the industrial minerals are estimates. Many operators do not know actual production. Some operators report estimates, other operators do not report any production. For those operators who do not report production, production is assumed to equal sales.
[2]Includes material for captive use.
[3]Thousand cubic feet.
[4]Figure not available.

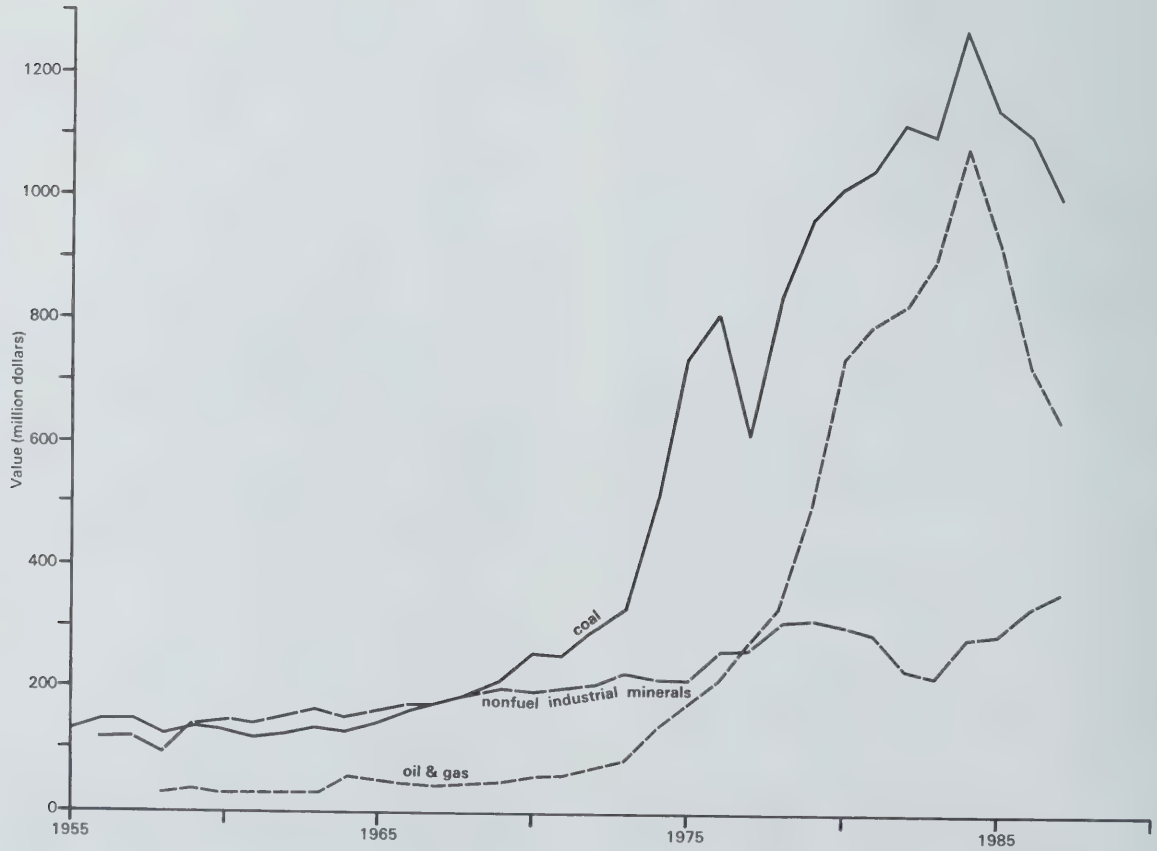


FIGURE 1.—Value of coal, nonfuel industrial minerals, and oil and gas in Ohio.

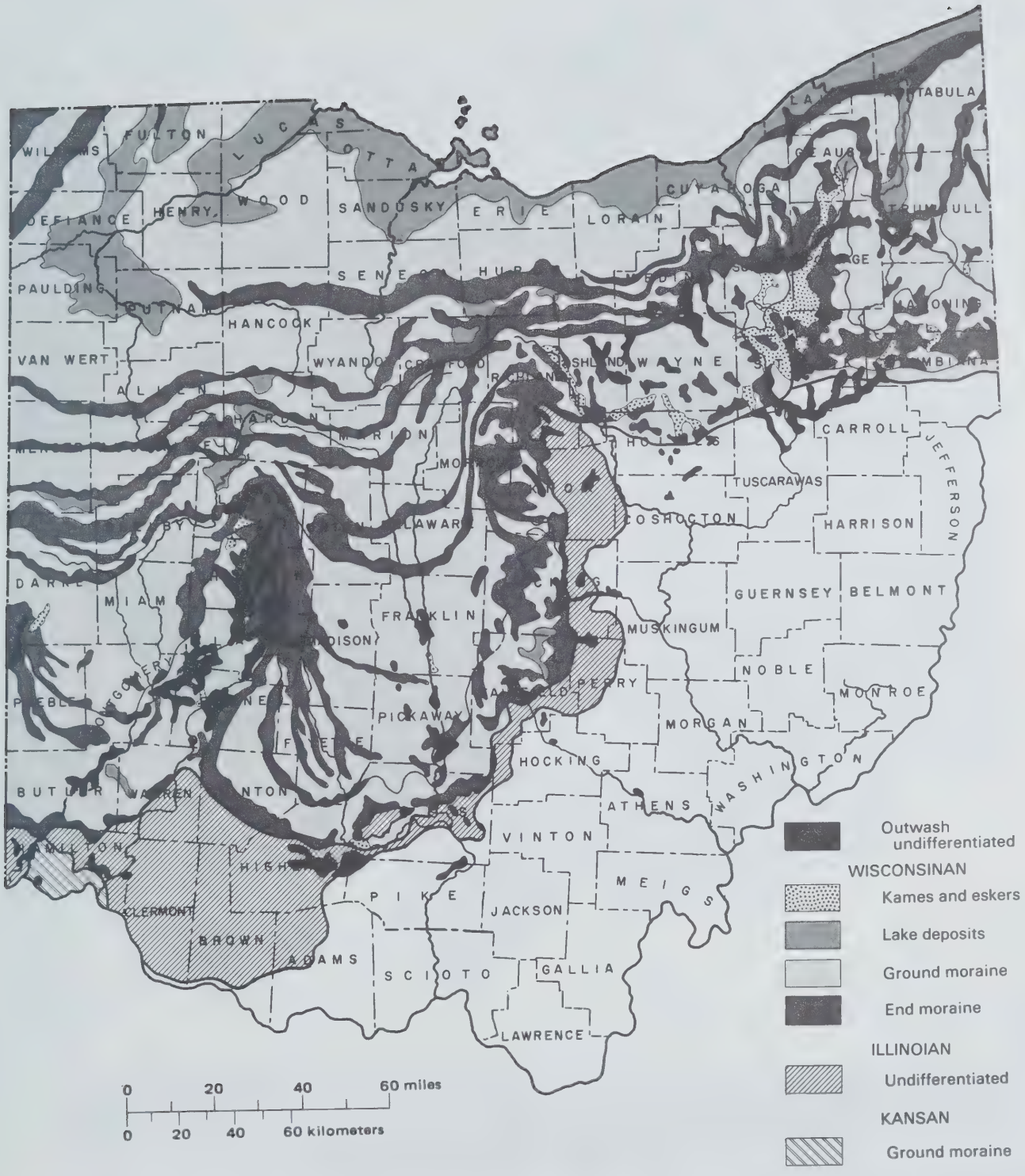


FIGURE 2.—Generalized map of the glacial deposits of Ohio. Continental glaciers advanced over the Ohio landscape several times during the Ice Age. These glaciers deposited unconsolidated materials on top of the bedrock over nearly two-thirds of the state. Most of Ohio's sand and gravel production comes from kames, eskers, and outwash, which were deposited by meltwater from the glaciers. Other glacially derived industrial minerals in Ohio include peat and clay.

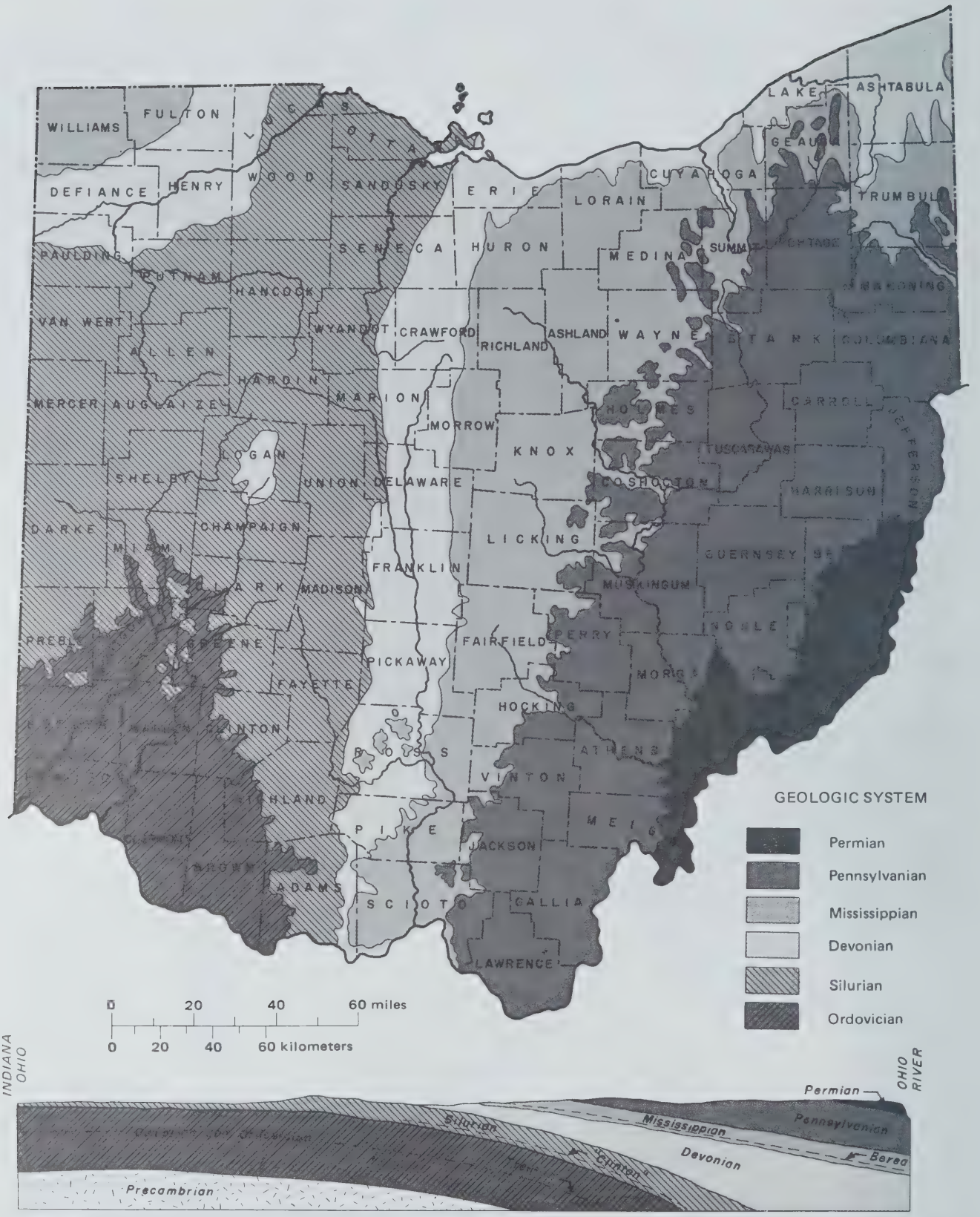


FIGURE 3.—Generalized geologic map and cross section of Ohio. Mineral production occurs throughout Ohio and from every geologic system from the Cambrian to the Permian. Coal, limestone and dolomite, sandstone and conglomerate, shale, clay, gypsum, salt, and oil and gas are produced from Ohio bedrock.

COAL

Coal was produced by 129 companies at 294 mines in 24 Ohio counties during 1987. Production decreased 4.6 percent from 1986, totalling 33,152,316 tons in 1987, with 21,720,445 tons produced at 278 surface mines, and 11,431,871 tons produced at 17 underground mines (one mine produced both surface and underground tonnage). In comparison to 1986, there were 18 fewer mines reporting production of 50,000 tons or less, 3 more mines producing between 50,000 and 500,000 tons, 3 more mines producing between 500,000 and 1,000,000 tons, and 3 fewer mines reporting production of 1,000,000 tons or greater; there was a net decrease of 15 mines in 1987.

The five leading counties for 1987 production were Belmont, Meigs, Noble, Harrison, and Monroe Counties; these counties produced 54.9 percent of the 1987 total production. A total of 33,321,936 tons of coal were sold in 1987, with a total value[3] of $1,004,155,255. The average price per ton of all coal sold was $30.14; surface-mined coal averaged $27.26 per ton and underground-mined coal averaged $35.72.

In underground mining, 59.3 percent of the coal was mined by continuous miner, 40.6 percent was produced by longwall mining, and 0.1 percent was produced by conventional mining in 1987. In surface operations, 4.0 percent of the coal produced was auger mined, and the remainder was strip mined.

The Pittsburgh (No. 8) coal was the most heavily mined seam, followed by the Meigs Creek (No. 9), Clarion (No. 4A), Middle Kittanning (No. 6), and Lower Kittanning (No. 5) seams. Coal produced from these five seams made up 79.7 percent of the total 1987 production.

A total of 20,982,236 tons of coal were reported as washed in 1987. Reports from 27 coal-washing plants indicate an average 32.4 percent loss in washing.

Trucking was the primary means of coal disposition, carrying 44.9 percent of the total sales. Conveyor belts carried 26.9 percent, water transport carried 16.5 percent, and rail transported 11.6 percent of the coal sold in 1987; less than 0.1 percent was handled by other undesignated means. A total of 1.3 percent of the coal produced was reported as stored.

The total average annual employment reported in 1987 was 7,587 employees, 4,583 of whom were production employees. The average annual wage earned by all production employees was $33,227, based on those employees for whom wages were reported. The average annual wage for surface-mine production employees was $30,739, and the average annual wage for underground-mine production employees was $36,259. Wages earned by all employees totalled $254,054,787 in 1987.

[3]Includes reported and estimated values. See footnote 2, p. 10.

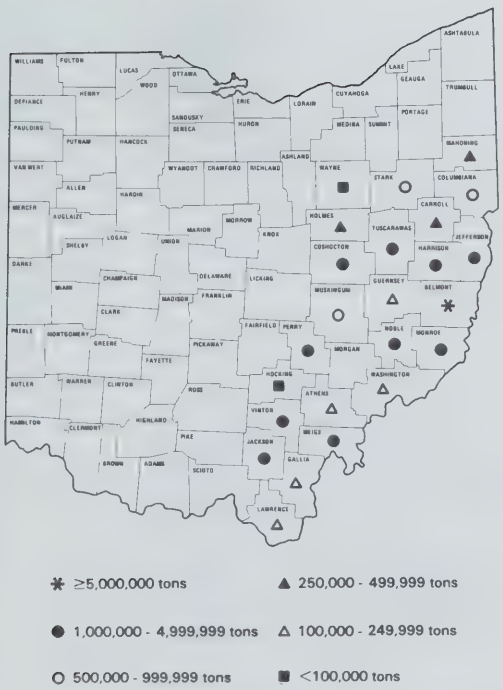


FIGURE 4.—Coal sales in Ohio in 1987, by county.

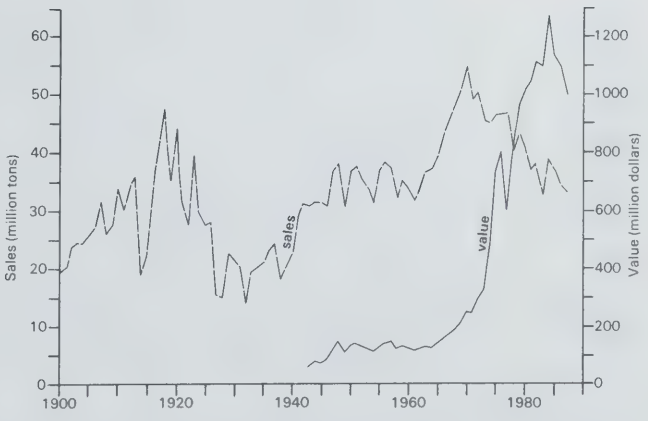


FIGURE 5.—Sales and value of coal in Ohio.

TABLE 2.—*1987 Ohio coal production by production-size group and change from 1986*

Production-size group	1987		Change from 1986 (short tons)
	Number of mines reporting	Production (short tons)	
Under 25,000 tons	121	1,133,732	-279,830
25,000 to 49,999 tons	63	2,330,727	-84,894
50,000 to 99,999 tons	42	2,935,876	+45,716
100,000 to 249,999 tons	46	7,474,735	+793,301
250,000 to 499,999 tons	10	3,609,452	+430,818
500,000 to 999,999 tons	8	6,214,694	+2,465,345
1,000,000 tons and over	4	9,453,100	-4,951,550
TOTAL	294	33,152,316	-1,581,094

TABLE 3.—*1987 Ohio coal production by county and mining method*

County[1]	All methods (short tons)	Underground					Surface			
		Number of mines reporting	Production (short tons)				Number of mines reporting	Production (short tons)		
			Total	Longwall	Conventional	Continuous miner		Total	Strip	Auger
Athens	150,700						3	150,700	150,700	
Belmont	5,898,452	2	1,457,805	1,105		1,456,700	52[2]	4,440,647	4,141,295	299,352
Carroll	298,370						13	298,370	285,722	12,648
Columbiana	765,309	2	25,905			25,905	33	739,404	721,824	17,580
Coshocton	1,539,958						14	1,539,958	1,513,098	26,860
Gallia	140,619	1	32,792			32,792	2	107,827	107,827	
Guernsey	217,206						3[2]	217,206	187,166	30,040
Harrison	2,803,707	3	1,341,466	813,150		528,316	18	1,462,241	1,440,782	21,459
Hocking	72,198						4	72,198	72,198	
Holmes	464,585						6	464,585	464,585	
Jackson	1,670,508	1	172,414			172,414	10	1,498,094	1,498,094	
Jefferson	2,054,127						21[2]	2,054,127	2,028,763	25,364
Lawrence	228,782						2[2]	228,782	228,782	
Mahoning	262,854						5	262,854	260,189	2,665
Meigs	3,901,859	2	3,901,859	2,070,566		1,831,293				
Monroe	2,116,550	1	2,116,550	1,753,580		362,970				
Muskingum	537,025	2	14,391		10,668	3,723	4[2]	522,634	488,110	34,524
Noble	3,492,819						6	3,492,819	3,324,350	168,469
Perry	1,809,203	2	1,319,447			1,319,447	7	489,756	489,756	
Stark	764,166						13	764,166	742,175	21,991
Tuscarawas	1,782,774						46[2]	1,782,774	1,575,860	206,914
Vinton	1,959,766	1	1,049,242			1,049,242	14	910,524	910,524	
Washington	206,187						2	206,187	204,827	1,360
Wayne	14,592						1[4]	14,592	14,592	
TOTAL	33,152,316	17[3]	11,431,871	4,638,401	10,668	6,782,802	278[3]	21,720,445	20,851,219	869,226

[1]Production from mines operating in more than one county was evenly split between the counties involved unless a by-county breakdown was provided by the operator.
[2]Does not include mines extending into this county from adjoining counties.
[3]Production was reported from a total of 294 mines. One mine produced both surface and underground tonnage.
[4]This mine extends into Wayne County from Holmes County and is not included in the total number of mines.

TABLE 4.—*1987 Ohio coal production by county and month*

County[1]	Production (short tons)												
	Total annual	January	February	March	April	May	June	July	August	September	October	November	December
Athens	150,700	2,355	2,465	3,143	3,195	2,248	2,606	13,705	20,792	22,590	26,733	18,244	32,624
Belmont	5,898,452	471,209	499,162	562,482	480,406	446,222	445,375	391,682	436,930	441,859	555,315	561,873	605,937
Carroll	298,370	15,608	17,708	22,233	18,196	13,688	21,976	18,226	19,746	28,085	38,564	40,672	43,668
Columbiana	765,309	61,126	69,318	59,903	52,696	36,990	72,851	67,513	65,049	64,409	66,699	62,636	86,119
Coshocton	1,539,958	125,157	128,187	125,958	126,992	127,921	132,447	120,976	117,821	141,255	142,261	114,759	136,224
Gallia	140,619	50,193	42,865	37,833	5,853	1,655	2,220						
Guernsey	217,206	26,486	19,725	19,715	16,871	12,258	16,259	16,952	14,709	16,471	17,279	16,669	23,812
Harrison	2,803,707	301,596	302,349	280,282	251,390	287,005	271,100	173,712	170,077	216,799	213,360	176,570	159,467
Hocking	72,198	8,659	3,289	7,339	3,610	2,260	5,775	3,362	6,090	6,575	7,626	8,689	8,924
Holmes	464,585	36,631	28,392	32,581	28,063	20,583	20,833	33,957	38,040	35,077	49,292	55,875	85,261
Jackson	1,670,508	140,849	142,851	125,878	121,749	128,799	129,349	128,311	178,871	176,721	132,532	138,684	125,914
Jefferson	2,054,127	135,536	152,824	188,645	170,056	144,785	176,623	156,389	182,104	180,355	177,612	183,399	205,799
Lawrence	228,782	24,178	14,509	24,312	18,073	19,950	22,967	20,470	24,967	23,132	15,225	11,091	9,908
Mahoning	262,854	27,531	24,786	15,331	22,861	21,472	15,473	26,978	14,562	30,399	22,633	19,158	21,670
Meigs	3,901,859	325,047	348,429	365,293	328,663	279,191	300,682	208,054	304,443	336,993	329,420	338,880	436,764
Monroe	2,116,550				197,287	300,901	171,890	207,168	317,164	310,556	225,190	185,821	200,573
Muskingum	537,025	84,195	79,536	83,677	22,473	18,579	8,084	12,245	40,641	41,133	19,726	71,173	55,563
Noble	3,492,819	282,024	279,807	350,252	316,349	286,057	333,125	270,500	325,963	303,483	292,413	202,678	250,168
Perry	1,809,203	203,787	206,082	195,785	180,491	125,404	163,564	138,157	151,797	142,496	119,466	83,636	98,538
Stark	764,166	75,664	81,458	63,975	30,928	26,725	31,218	75,243	75,941	67,907	83,299	81,845	69,963
Tuscarawas	1,782,774	148,965	132,732	136,343	141,348	128,250	137,523	143,743	140,567	145,044	178,953	171,039	178,267
Vinton	1,959,766	140,752	157,070	140,891	149,608	149,377	140,805	148,425	173,742	183,411	214,946	178,761	181,978
Washington	206,187		4,776	14,543	16,222	20,035	15,390	14,519	19,543	20,656	16,729	16,939	46,835
Wayne	14,592	735	1,640	1,385	625	778	1,028	1,571	2,743	380	1,332	1,537	838
TOTAL	33,152,316	2,688,283	2,739,960	2,857,779	2,704,005	2,601,133	2,639,163	2,391,858	2,842,302	2,935,786	2,946,605	2,740,628	3,064,814

[1]Production from mines operating in more than one county was evenly split between the counties involved unless a by-county breakdown was provided by the operator.

Mining of the Lower Kittanning (No. 5) coal at the Waterloo Coal Company's strip mining operation in Jackson County. Photo taken during 1987 Ohio's Mineral Industries Teachers' Workshop.

TABLE 5.—*1987 Ohio coal production*

County[1]	Production											
	Total	Sharon (No. 1)	Lower Mercer (No. 3)	Upper Mercer (No. 3A)	Tionesta (No. 3B)	Brookville (No. 4)	Winters	Clarion (No. 4A)	Lower Kittanning (No. 5)	Strasburg (No. 5A)	Middle Kittanning (No. 6)	
Athens	150,700										122,998	
Belmont	5,898,452											
Carroll	298,370								7,070		168,337	
Columbiana	765,309					23,929			8,204		383,379	
Coshocton	1,539,958								771,487		768,471	
Gallia	140,619										38,440	
Guernsey	217,206								257		94,502	
Harrison	2,803,707											
Hocking	72,198										21,939	
Holmes	464,585		8,466	5,018		52,781			226,243		172,077	
Jackson	1,670,508	201,890	15,190			189,492	2,702	460,970	705,181		76,921	
Jefferson	2,054,127											
Lawrence	228,782							14,188	97,623		36,234	
Mahoning	262,854					208,931			47,121		6,802	
Meigs	3,901,859							3,901,859				
Monroe	2,116,550											
Muskingum	537,025								1,951		284,124	
Noble	3,492,819											
Perry	1,809,203								113,506		1,672,735	
Stark	764,166					142,700			292,365	1,245	322,384	
Tuscarawas	1,782,774			126,502	96,954	81,758			414,714	34,516	785,526	
Vinton	1,959,766		71,195			285,902	88,690	1,114,567	349,893		42,804	
Washington	206,187											
Wayne	14,592					14,592						
TOTAL	33,152,316	201,890	94,851	131,520	96,954	1,000,085	91,392	5,491,584	3,035,615	35,761	4,997,673	

[1]Production from mines operating in more than one county was evenly split between the counties involved unless a by-county breakdown was provided by the operator.

A portion of Southern Ohio Coal Company's Meigs No. 1 coal-preparation plant in Meigs County, which is the largest coal prep plant in North America. The lower conveyor system carries the washed coal to the clean-coal silo. Photo taken during 1988 Ohio's Mineral Industries Teachers' Workshop.

by county and seam

(short tons)

Lower Freeport (No. 6A)	Upper Freeport (No. 7)	Mahoning (No. 7A)	Wilgus	Harlem	Pittsburgh (No. 8)	Pomeroy-Redstone (No. 8A)	Meigs Creek (No. 9)	Waynesburg (No. 11)	Washington (No. 12)
	18,114				9,588				
	5,216				1,758,741	4,880	2,363,492	1,524,196	241,927
11,754	4,987	11,564		91,283	1,399		1,976		
65,527	281,364	2,906							
16,397						85,782			
	69,186				53,261				
1,280,404	35,379			138,160	878,907	164,748	63,665	242,444	
50,259									
10,362	7,800								
	10,389				1,690,635	260,528	13,586	78,989	
			59,292			21,445			
					2,116,550				
					6,757		238,303	5,890	
							3,492,819		
	22,962								
5,472									
58,872	183,932								
6,715									
							206,187		
1,505,762	639,329	14,470	59,292	229,443	6,515,838	537,383	6,380,028	1,851,519	241,927

Computer system which runs Southern Ohio Coal Company's coal-preparation plant (see photo at left). Photo taken during 1987 Ohio's Mineral Industries Teachers' Workshop.

TABLE 6.—*1987 Disposition of Ohio coal, by county*

County[1]	Number of mines	Disposition[1] (short tons)						Stored
		Total[2]	Rail	Water	Truck	Conveyor	Unspecified/ other	
Athens	3	150,700			150,700			
Belmont	54[3]	5,784,247	1,659,462	1,697,942	2,407,759	19,068	16	184,504
Carroll	13	298,010			298,010			400
Columbiana	35	761,636			761,636			4,107
Coshocton	14	1,577,269	109	4,217	835,883	737,060		9,016
Gallia	3	157,213		28,653	128,560			
Guernsey	3[3]	216,793	2,332	63,682	150,520	259		562
Harrison	21	2,766,493	149,891	851,201	825,088	940,305	8	60,384
Hocking	4	72,198		50,661	21,537			
Holmes	6	464,585			464,585			
Jackson	11	1,670,509		60,810	1,609,699			
Jefferson	21[3]	2,037,261	7,682	207,604	1,821,975			25,373
Lawrence	2[3]	254,662		146,530	101,031		7,101	1,333
Mahoning	5	273,279		273,279				14,906
Meigs	2	3,905,130				3,905,130		14,507
Monroe	1	2,116,550		2,116,550				
Muskingum	5[3]	554,270	3,746		312,221	238,303		
Noble	6	3,491,226	1,527	71,989	277,988	3,139,688	34	2,095
Perry	8	1,870,668	993,173	39,915	837,580			91,701
Stark	13	760,664			760,664			3,501
Tuscarawas	47[3]	1,955,830	2,555	107,165	1,846,104		6	11,083
Vinton	15	1,961,964	1,051,440	39,627	870,897			381
Washington	2	206,187			206,187			
Wayne	1[4]	14,592			14,592			
TOTAL	294	33,321,936	3,871,917	5,486,546	14,976,495	8,979,813	7,165	423,853

[1]Tonnage of coal shipped from mines operating in more than one county was evenly split between the counties involved and type(s) of disposition reported unless a by-county breakdown was provided by the operator.
[2]Does not reflect tonnage stored. Reflects tonnage sold and shipped from mine.
[3]Does not include mines extending into this county from adjoining counties.
[4]This mine extends into Wayne County from Holmes County and is not included in the total number of mines.

TABLE 7.—*1987 Rail shipments of Ohio coal, by county of origin and carrier*

County[1]	Number of mines	Shipments[1] (short tons)				
		Total	Conrail	B & O	N & W	C & O
Belmont	18	1,659,462	812,355	308,665	538,442	
Coshocton	2	109		109		
Guernsey	1[2]	2,332	1,378	954		
Harrison	10	149,891	139,512	10,379		
Jefferson	3[2]	7,682	5,162	2,520		
Muskingum	1	3,746	3,746			
Noble	2	1,527	1,251	276		
Perry	3	993,173	993,173			
Tuscarawas	2[2]	2,555	1,370	1,185		
Vinton	1	1,051,440				1,051,440
TOTAL	43	3,871,917	1,957,947	324,088	538,442	1,051,440

[1]Tonnage of coal shipped from mines operating in more than one county was evenly split between the counties involved and the carriers reported unless a by-county breakdown was provided by the operator.
[2]Does not include mines extending into this county from adjoining counties.

TABLE 8.—*1987 Washed Ohio coal*

		Raw coal (short tons)	Washed coal (short tons)	Loss in washing (short tons)	Loss in washing (percent)	Percent of all washed coals
By type of mining	From surface mines	17,517,929[1]	12,877,354	4,640,575	26.5	61.4
	From underground mines	13,520,405[1]	8,104,882	5,415,523	40.1	38.6
	TOTAL	31,038,334	20,982,236[2]	10,056,098	32.4	100.0
By seam	Brookville (No. 4)	110,842[1]	84,618	26,224	23.7	0.4
	Winters	67,395	47,245	20,150	29.9	0.2
	Clarion (No. 4A)	9,117,583[1]	5,400,577	3,717,006	40.8	25.7
	Lower Kittanning (No. 5)	1,160,415[1]	908,439	251,976	21.7	4.3
	Middle Kittanning (No. 6)	2,713,344[1]	1,897,066	816,278	30.1	9.1
	Lower Freeport (No. 6A)	2,213,100[1]	1,201,113	1,011,987	45.7	5.7
	Upper Freeport (No. 7)	94,717[1]	76,332	18,385	19.4	0.4
	Pittsburgh (No. 8)	7,014,949[1]	4,389,494	2,625,455	37.4	20.9
	Pomeroy-Redstone (No. 8A)	646,721[1]	409,245	237,476	36.7	2.0
	Meigs Creek (No. 9)	5,803,235[1]	4,841,644	961,591	16.6	23.1
	Waynesburg (No. 11)	1,996,728[1]	1,636,913	359,815	18.0	7.8
	Washington (No. 12)	99,305[1]	89,550	9,755	9.8	0.4
	TOTAL	31,038,334	20,982,236[2]	10,056,098	32.4	100.0

[1]The raw tonnage (before washing) of coal was estimated for those mines which failed to report this information. These estimates were calculated using a statewide-average loss-in-washing percentage based on raw/washed coal values for type of mining and for seam deemed to be reliable.

[2]These figures reflect total washed coal in 1987 and do not necessarily reflect only 1987 production. In 1987, 36.7% of the total production was reported as unwashed. Coal not designated as washed or unwashed was assumed to be unwashed.

TABLE 9.—*1987 Dollar value of coal at mine by county and mining method*

County[1]	Surface				Underground				Total			
	No. of mines	Tonnage sold (short tons)	Value at mine[2] (dollars)	Per ton average (dollars)	No. of mines	Tonnage sold (short tons)	Value at mine[2] (dollars)	Per ton average (dollars)	No. of mines	Tonnage sold (short tons)	Value at mine[2] (dollars)	Per ton average (dollars)
Athens	3	150,700	$2,885,793	$19.15					3	150,700	$2,885,793	$19.15
Belmont	52[3]	4,454,279	131,344,587	29.49	2[3]	1,329,968	$44,706,122	$33.61	54[3]	5,784,247	176,050,709	30.44
Carroll	13	298,010	6,446,258	21.63					13	298,010	6,446,258	21.63
Columbiana	33	735,731	15,879,574	21.58	2	25,905	396,825	15.32	35	761,636	16,276,399	21.37
Coshocton	14	1,577,269	52,107,969	20.28					14	1,577,269	52,107,969	20.28
Gallia	2	124,421	3,175,390	25.52	1	32,792	651,699	19.87	3	157,213	3,827,089	24.34
Guernsey	3[3]	216,793	7,246,855	33.43					3[3]	216,793	7,246,855	33.43
Harrison	18	1,440,723	48,941,046	33.97	3	1,325,770	39,506,562	29.80	21	2,766,493	88,447,608	31.97
Hocking	4	72,198	1,050,075	14.54					4	72,198	1,050,075	14.54
Holmes	6	464,585	8,267,357	17.80					6	464,585	8,267,357	17.80
Jackson	10	1,498,095	27,591,558	18.42	1	172,414	2,292,194	13.29	11	1,670,509	29,883,752	17.89
Jefferson	21[3]	2,037,261	52,373,153	25.71					21[3]	2,037,261	52,373,153	25.71
Lawrence	2[3]	254,662	3,983,891	15.64					2[3]	254,662	3,983,891	15.64
Mahoning	5	273,279	7,570,703	27.70					5	273,279	7,570,703	27.70
Meigs					2	3,905,130	166,337,612	42.59	2	3,905,130	166,337,612	42.59
Monroe					1	2,116,550	68,431,560	32.33	1	2,116,550	68,431,560	32.33
Muskingum	4[3]	539,878	14,914,397	27.63	2	14,392	172,701	12.00	5[3,5]	554,270	15,087,098	27.22
Noble	6	3,491,226	121,800,307	34.89					6	3,491,226	121,800,307	34.89
Perry	6	518,219	9,107,027	17.57	2	1,352,449	37,144,104	27.46	8	1,870,668	46,251,131	24.72
Stark	13	760,664	12,577,937	16.54					13	760,664	12,577,937	16.54
Tuscarawas	47[3]	1,955,830	49,569,385	25.34					47[3]	1,955,830	49,569,385	25.34
Vinton	14	910,524	19,139,340	21.02	1	1,051,440	44,919,192	42.72	15	1,961,964	64,058,532	32.65
Washington	2	206,187	3,387,651	16.43					2	206,187	3,387,651	16.43
Wayne	1[4]	14,592	236,431	16.20					1	14,592	236,431	16.20
TOTAL	278	21,995,126	$599,596,684	$27.26	17	11,326,810	$404,558,571	$35.72	294[5]	33,321,936	$1,004,155,255	$30.14

[1]Sales reported from mines operating in more than one county were evenly split between the counties involved unless a by-county breakdown was provided by the operator.

[2]The FOB value of coal sold was estimated for those mines which failed to report this information. These estimates were calculated using a countywide-average price per ton by mining method based on reported FOB values deemed to be reliable.

[3]Does not include mines extending into this county from adjoining counties.

[4]This mine extends into Wayne County from Holmes County and is not included in the total number of mines.

[5]One mine sold both surface and underground tonnage.

TABLE 10.—*1987 Ohio coal-mine employment[1], by occupational group and month*

Occupational group	Number of employees												
	Monthly average	January	February	March	April	May	June	July	August	September	October	November	December
All production workers	4,583	4,746	4,734	4,648	4,949	4,732	4,539	4,619	4,524	4,525	4,305	4,351	4,319
Underground mines													
Tonnage employees	368	365	354	323	458	423	370	383	366	372	340	348	312
Underground production employees	1,646	1,605	1,589	1,546	1,958	1,886	1,787	1,787	1,649	1,655	1,398	1,433	1,457
Surface production employees	49	45	43	38	62	63	57	60	51	51	38	38	38
Surface mines													
Strip miners	2,486	2,691	2,715	2,703	2,439	2,328	2,300	2,359	2,418	2,413	2,495	2,493	2,478
Auger miners	34	40	33	38	32	32	25	30	40	34	34	39	34
Reclamation	166	114	116	137	136	155	163	240	221	213	184	172	143
Supervisory, technical, and clerical	1,563	1,454	1,461	1,457	1,748	1,666	1,654	1,653	1,617	1,619	1,476	1,468	1,478
Central preparation plant, central shop, etc.	1,275	1,273	1,275	1,252	1,325	1,307	1,288	1,296	1,299	1,296	1,235	1,225	1,229
TOTAL	7,587	7,587	7,586	7,494	8,158	7,860	7,644	7,808	7,661	7,653	7,200	7,216	7,169

[1]Reflects employment as reported. Employment was not included for mines which were owner operated or where coal extraction was incidental to principal operation.

TABLE 11.—*1987 Ohio coal-mine production employment[1], by county and month*

County[2]	Number of employees												
	Monthly average	January	February	March	April	May	June	July	August	September	October	November	December
Athens	15	7	6	6	6	5	6	22	22	25	24	25	25
Belmont	809	857	857	799	765	719	705	755	774	774	894	916	894
Carroll	52	54	54	55	46	46	46	37	45	46	64	68	67
Columbiana	118	117	116	117	103	102	97	131	138	142	106	116	125
Coshocton	238	241	257	243	249	244	242	226	228	238	235	230	230
Gallia	37	118	118	110	42	14	14	8	8	8	3	3	3
Guernsey	24	40	34	33	19	13	17	19	21	20	24	23	28
Harrison	350	498	514	469	502	493	349	322	190	199	206	232	222
Hocking	2	6	6	2	2	1	0	0	3	0	0	0	0
Holmes	38	37	37	36	34	35	35	38	38	40	43	43	43
Jackson	119	109	109	115	97	110	107	116	121	122	135	140	142
Jefferson	264	254	268	276	277	241	249	271	269	270	262	265	262
Lawrence	43	45	47	45	50	50	49	49	49	49	29	29	29
Mahoning	36	43	42	41	40	37	37	34	35	31	32	31	30
Meigs	653	666	658	656	656	654	655	665	664	658	636	635	638
Monroe	318	0	0	0	538	536	531	523	519	515	220	213	217
Muskingum	69	147	133	140	50	45	38	37	33	35	54	57	60
Noble	360	371	366	387	364	363	379	376	356	356	336	335	335
Perry	357	444	446	445	454	360	326	316	325	325	278	282	278
Stark	91	95	97	94	74	68	61	92	94	100	106	104	103
Tuscarawas	225	240	217	218	212	231	228	223	228	200	248	233	216
Vinton	338	337	331	340	339	335	338	331	336	344	342	343	344
Washington	23	16	17	17	26	26	26	24	24	24	24	24	24
Wayne	4	4	4	4	4	4	4	4	4	4	4	4	4
TOTAL	4,583	4,746	4,734	4,648	4,949	4,732	4,539	4,619	4,524	4,525	4,305	4,351	4,319

[1]Reflects employment as reported. Employment was not included for mines which were owner operated or where coal extraction was incidental to principal operation.
[2]For those operations reporting activity in more than one county, employment was evenly split (to the nearest whole employee) between the counties involved unless a by-county breakdown was provided by the operator.

TABLE 12.—*1987 Ohio coal-mine employment[1] in central preparation plants, central shops, etc., by county and month*

County[2]	Number of employees												
	Monthly average	January	February	March	April	May	June	July	August	September	October	November	December
Belmont	166	158	167	162	164	162	165	168	173	174	170	164	162
Columbiana	37	42	38	30	38	38	37	34	34	35	40	40	40
Coshocton	44	43	43	43	46	45	44	44	44	44	43	43	43
Gallia	6	8	8	8	6	6	4	5	5	5	6	5	5
Harrison	79	77	77	78	78	78	79	78	77	77	83	81	84
Hocking	2	3	2	2	3	2	2	2	2	2	2	2	2
Jackson	25	26	26	26	24	26	26	25	25	25	25	25	25
Jefferson	41	56	58	56	44	34	34	33	32	35	36	34	34
Lawrence	24	22	16	19	21	21	20	26	27	28	28	30	31
Mahoning	13	14	14	14	14	13	12	10	11	11	12	12	12
Meigs	210	213	213	208	209	210	209	211	212	212	206	206	206
Monroe	41	0	0	0	65	64	64	64	64	64	34	34	34
Muskingum	29	20	20	20	20	21	20	24	23	23	51	52	52
Noble	308	325	320	315	322	322	322	311	311	311	279	278	280
Perry	61	72	78	77	77	77	61	60	57	54	39	39	39
Scioto	23	22	22	22	22	22	22	24	24	24	24	24	24
Stark	13	14	14	14	13	10	12	15	15	15	12	11	12
Tuscarawas	41	41	42	42	42	41	41	42	41	41	39	39	37
Vinton	114	117	117	116	117	115	114	120	122	116	106	106	107
TOTAL	1,275	1,273	1,275	1,252	1,325	1,307	1,288	1,296	1,299	1,296	1,235	1,225	1,229

[1]Reflects employment as reported. Employment was not included for mines which were owner operated or where coal extraction was incidental to principal operation.
[2]For those operations reporting activity in more than one county, employment was evenly split (to the nearest whole employee) between the counties involved unless a by-county breakdown was provided by the operator.

TABLE 13.—*1987 Ohio coal-mine employment[1] in supervisory, technical, and clerical positions, by county and month*

County[2]	Number of employees												
	Monthly average	January	February	March	April	May	June	July	August	September	October	November	December
Athens	2	1	1	1	2	2	2	2	2	2	2	1	1
Belmont	256	212	208	207	292	269	255	258	282	295	266	263	261
Carroll	9	8	8	8	8	8	8	9	9	9	12	11	11
Columbiana	33	29	29	29	33	33	33	33	33	32	33	34	41
Coshocton	83	74	78	76	87	87	86	85	81	85	83	83	86
Gallia	24	42	42	42	35	22	21	19	18	18	8	14	13
Guernsey	7	7	7	7	8	7	6	6	6	6	9	9	11
Harrison	133	150	158	155	163	162	159	133	106	102	100	104	103
Hocking	[3]	1	1	1	0	0	0	0	0	0	0	0	0
Holmes	4	4	4	4	4	4	4	4	4	4	5	5	5
Jackson	19	21	20	20	20	21	21	19	19	19	16	16	16
Jefferson	71	60	62	63	72	69	75	79	73	69	73	76	78
Lawrence	17	17	15	16	29	17	16	18	16	16	14	15	15
Mahoning	7	8	8	8	8	7	8	7	7	7	7	7	7
Meigs	283	285	286	285	289	286	287	287	280	278	279	280	280
Monroe	109	0	0	0	178	178	178	174	174	174	90	82	79
Muskingum	37	53	53	52	52	27	27	28	28	28	32	32	32
Noble	150	151	152	155	152	152	163	161	151	148	136	137	138
Perry	96	103	102	100	99	99	95	97	96	96	87	87	86
Scioto	6	6	6	6	6	6	6	6	6	6	6	6	6
Stark	24	30	28	30	25	21	20	22	22	22	23	23	24
Tuscarawas	63	68	67	66	60	62	59	76	70	69	56	54	53
Vinton	127	121	123	123	124	125	123	128	132	132	136	126	129
Washington	2	2	2	2	2	2	2	2	2	2	2	2	2
Wayne	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	1,563	1,454	1,461	1,457	1,748	1,666	1,654	1,653	1,617	1,619	1,476	1,468	1,478

[1]Reflects employment as reported. Employment was not included for mines which were owner operated or where coal extraction was incidental to principal operation.
[2]For those operations reporting activity in more than one county, employment was evenly split (to the nearest whole employee) between the counties involved unless a by-county breakdown was provided by the operator.
[3]Averages fewer than one employee per month.

TABLE 14.—*1987 Ohio surface coal-mine reclamation employment[1], by county and month*

County[2]	Number of employees												
	Monthly average	January	February	March	April	May	June	July	August	September	October	November	December
Athens	1	0	0	0	3	2	2	0	0	0	4	0	0
Belmont	23	15	16	18	11	14	19	31	34	35	29	27	26
Carroll	1	3	3	3	0	0	0	2	2	2	1	1	1
Columbiana	11	7	7	10	16	16	17	15	10	9	5	15	5
Coshocton	2	0	0	8	1	1	1	4	0	0	2	3	2
Gallia	3	0	0	0	0	0	0	3	3	3	9	9	7
Holmes	1	0	0	0	0	0	0	2	2	2	0	0	0
Jackson	1	0	0	0	0	1	2	2	2	2	2	2	2
Jefferson	4	6	7	9	8	7	5	5	2	1	2	2	1
Lawrence	10	0	0	0	2	2	2	30	30	30	8	8	6
Mahoning	2	0	0	0	0	0	0	6	5	6	4	0	0
Muskingum	16	4	4	4	2	6	7	25	25	24	32	30	26
Noble	74	69	70	68	73	83	86	84	83	81	73	59	58
Stark	5	2	3	4	6	6	6	7	8	5	3	3	3
Tuscarawas	9	8	6	13	14	17	16	14	7	3	6	9	2
Vinton	3	0	0	0	0	0	0	10	8	10	4	4	4
TOTAL	166	114	116	137	136	155	163	240	221	213	184	172	143

[1]Reflects employment as reported. Employment was not included for mines which were owner operated or where coal extraction was incidental to principal operation.
[2]For those operations reporting activity in more than one county, employment was evenly split (to the nearest whole employee) between the counties involved unless a by-county breakdown was provided by the operator.

TABLE 15.—*1987 Wage and salary payments to Ohio coal-mine employees, by county and occupational group*

County[1]	Wage and salary payments (nearest whole dollar)[2]								
	All occupations	Tonnage employees	Underground production employees	Surface production employees	Strip miners	Auger miners	Central preparation plant, central shop, etc.	Supervisory, technical, and clerical	Reclamation
Athens	$372,044				$361,224			$6,516	$4,304
Belmont	43,527,739	$5,177,188	$6,428,723	$869,847	15,890,163	$28,064	$5,037,030	9,731,088	365,636
Carroll	1,442,202				1,248,128			153,720	40,354
Columbiana	4,891,620		257,684		2,685,037		942,881	739,441	266,577
Coshocton	12,367,612				8,078,170	19,827	1,082,784	3,174,842	11,989
Gallia	2,102,098		111,477		1,100,551		115,427	665,588	109,055
Guernsey	1,045,438				767,138	11,500		266,800	
Harrison	22,545,204	1,799,891	6,380,195	504,655	5,277,791		2,727,625	5,855,047	
Hocking	52,903				19,254		32,899	750	
Holmes	974,370				855,623			96,107	22,640
Jackson	4,879,619		406,131	36,770	3,071,752		742,307	606,874	15,785
Jefferson	11,471,643				8,009,281	14,370	1,179,894	2,133,974	134,124
Lawrence	2,125,000				954,544		466,784	462,592	241,080
Mahoning	1,558,203				1,005,960		325,008	181,946	45,289
Meigs	45,019,050		25,299,451				8,206,505	11,513,094	
Monroe	17,821,593	3,618,455	8,667,940	666,898			1,868,642	2,999,658	
Muskingum	5,101,347	13,574	41,983	1,278	2,199,143	75,167	822,321	1,452,780	495,101
Noble	29,597,106				12,260,139	262,106	9,416,540	5,834,675	1,823,646
Perry	15,235,497	3,187,911	4,418,299		1,927,782		1,602,465	4,099,040	
Scioto	900,048						773,189	126,859	
Stark	3,230,082				2,184,169		327,349	661,007	57,557
Tuscarawas	8,497,640				5,371,442	212,420	1,000,881	1,780,169	132,728
Vinton	18,423,855		6,913,255		2,607,053		3,619,833	5,227,592	56,122
Washington	726,742				650,831			75,911	
Wayne	146,132				129,368			16,764	
TOTAL	$254,054,787	$13,797,019	$58,925,138	$2,079,448	$76,654,543	$623,454	$40,290,364	$57,862,834	$3,821,987

[1]For those operations reporting activity in more than one county, wage and salary payments were evenly split between the counties involved unless a by-county breakdown was provided by the operator.
[2]For those operations reporting only a total wage and salary payment to all workers, an equal pay rate was assumed for all employees. In cases where quarterly employment was reported but wage and salary payments were not, wage and salary payments for that quarter were estimated from reported payments in the other quarters to arrive at the annual figure.

INDUSTRIAL MINERALS

Industrial minerals, other than mineral fuels, were produced in a total of 84 Ohio counties in 1987. The combined value of all nonfuel industrial minerals sold in 1987 was $363,440,856.

The average annual employment reported in 1987 for industrial mineral operations was 2,820 production employees and 1,087 nonproduction employees. There were 310 companies producing industrial minerals from 445 operations. Thirteen of these companies produced more than one mineral commodity from 17 operations.

The multiple-commodity operations employed 189 production people and 17 nonproduction people. Ten operations produced clay and shale and employed 42 production people and 3 nonproduction people; 1 operation produced limestone and shale and employed 42 production people and 1 nonproduction person; 3 operations produced limestone and clay and employed 85 production people and 6 nonproduction people; 1 operation produced sandstone and sand and gravel and employed 7 production people and 3 nonproduction people; 2 operations produced limestone, sandstone, clay, and shale and employed 13 production people and 4 nonproduction people. The 189 multiple-commodity production employees worked an average of 218 days in 1987. Total wages reported in 1987 for 189 production employees and 17 nonproduction employees at multiple-commodity operations were $7,278,283. The average annual wage was $35,331.

The total reported wages for all employees at industrial mineral operations in 1987 were $96,996,572. The average annual wage, based on those employees for whom wages were reported, was $24,989.

TABLE 16.—*1987 Value of Ohio industrial minerals*

Commodity	Sales (tons)	Change from 1986 (tons)	Value[1]	Percent of total value
Limestone and dolomite	45,048,244	+4,379,928	$165,488,324	45.5
Sand and gravel	39,666,280	+5,711,247	130,516,421	35.9
Salt	3,360,613	-525,211	32,002,012	8.8
Sandstone and conglomerate	1,888,899	+171,107	25,345,393	7.0
Shale	1,999,384	+683,858	1,956,678	0.5
Clay	1,376,016	+289,028	5,534,206	1.5
Gypsum	256,307	+42,335	2,434,918	0.7
Peat	19,056	+1,872	162,904	<0.1
TOTAL	93,614,799	+10,754,164	$363,440,856	100.0

[1]The FOB value of industrial minerals sold was estimated for those mines which failed to report this information and for those producing material for captive use. These estimates were calculated using a statewide-average price per ton based on reported FOB values.

Brick-cutting machine at Bowerston Shale Company's brick plant in Licking County. Photo taken during 1987 Ohio's Mineral Industries Teachers' Workshop.

TABLE 17.—*1987 Employment at Ohio industrial mineral operations, by county and commodity*

County[1]	Number of employees[2]																			
	Total		Limestone and dolomite		Sand and gravel		Sandstone and conglomerate		Clay		Shale		Salt		Gypsum		Peat		Multiple commodities	
	Production	Non-production	Production	Non-production	Production	Non-production	Production	Non-production	Production	Non-production	Production	Non-production	Production	Non-production	Production	Non-production	Production	Non-production	Production	Non-production
Adams	21	27	21	27																
Allen	26	6	25	5	1	1														
Ashland	9	2			9	2														
Ashtabula	10	5			10	5														
Athens	4	13			4	13														
Auglaize	23	7	16	2	6	5			1											
Belmont	20	11	15	3	5	8														
Brown	[3]		[3]																	
Butler	80	27			80	27														
Carroll	12	4	8	2	2	1	2	1												
Champaign	20	2			20	2											[4]	[4]		
Clark	35	12	3	1	32	11														
Clermont	8	6			8	6														
Clinton	17	8	17	8																
Columbiana	9	3									2								7	3
Coshocton	33	18			9	16	23	1			1	1								
Crawford	43		43																	
Cuyahoga	42	179									3		39	179						
Darke	10	4	7	1	3	3														
Defiance	[3]	[3]			[3]	[3]														
Delaware	64	7	64	7																
Erie	78	22	66	20	3		9	2												
Fairfield	5	3			5	3														
Fayette	10	1	10	1																
Franklin	167	33	65	2	100	30					2	1								
Gallia	1				1															
Geauga	59	30			11	3	48	27												
Greene	41	12	12	1	26	11			3											
Hamilton	58	76			58	76														
Hancock	30	3	30	3																
Hardin	4	12	4	12																
Harrison	1										1									
Henry	6	[3]			6	[3]														
Highland	16	17	16	17																
Hocking	3																		3	
Holmes	22	5			8	2	2		1	1	1	1							10	1
Huron	4	[3]			3	[3]	1													
Jackson	10	1							4										6	1
Knox	60	27			27	26	33	1												
Lake	118	2				2							115							

Lawrence	9	1			4	1			1	[3]	4									
Licking	31	12			28	10					2	1	1	1						
Logan	26	17	23	11	3	6														
Lorain	21	10			1		20	10												
Lucas	52	14	47	10	5	4														
Mahoning	53	3	10	2			1												42	1
Marion	36	8	32	5	2	2					2	1								
Medina	40	2			37	2					3									
Meigs	8	22			8	22														
Mercer	25	3	25	3																
Miami	70	35	53	15	17	20														
Monroe	6	2	6	2																
Montgomery	52	14	10	2	42	12														
Morgan	8	4			8	4														
Morrow	7	1			7	1														
Muskingum	62	13	49	8	12	5			1											
Noble	13	2	11	2							2									
Ottawa	106	42	97	31											9	11			69	4
Paulding	87	7	18	3																
Perry	59	3					56	3	3											
Pickaway	20	2	5	1	15	1														
Pike	10	16	5	7	5	9														
Portage	74	41			74	41														
Preble	25	4	8	2	17	2														
Putnam	7	3	6	3					1											
Richland	20	3			20	3														
Ross	27	6			8	2	19	4												
Sandusky	113	43	113	43																
Scioto	18	5			7	4	11	1												
Seneca	70	9	70	9																
Shelby	16	23	12	17	4	6														
Stark	53	15	9	3	32	10			3	[3]									9	2
Summit	10	4			9	4							1							
Trumbull	8	9			4	8	4	1												
Tuscarawas	92	20	8	3	23	9	5		9	1	4	2							43	5
Union	16	8	16	8																
Van Wert	17	6	17	6																
Vinton	4		4																	
Warren	13	11			13	11														
Washington	13	12			13	12	[3]	[3]												
Wayne	57	12	19	2	28	5			[3]				10	5						
Williams	8	6			8	6											[4]	[4]		
Wood	32	8	32	8																
Wyandot	139	16	125	14	13	2			1								[4]	[4]		
Lake Erie	3	4			3	4														
Maumee River	5	1			5	1														
TOTAL	2,820	1,087	1,252	332	915	482	234	51	28	2	27	7	166	185	9	11	[4]	[4]	189	17

[1]For those operations reporting activity in more than one county, employment was evenly split (to the nearest whole employee) between the counties involved unless a by-county breakdown was provided by the operator.
[2]Reflects employment as reported. Employment is not included for mines which were owner operated.
[3]Averages fewer than one employee per month.
[4]No employment information was given in 1987.

LIMESTONE AND DOLOMITE

Limestone and dolomite were sold or produced by 72 companies at 106 operations in 50 Ohio counties during 1987. Sales of limestone and dolomite totalled 45,048,244 tons, with Sandusky, Franklin, Erie, Ottawa, and Wyandot Counties accounting for 39.4 percent of those sales. Reported known production totalled 46,007,936 tons.

Lime produced from Ohio limestone and dolomite totalled 1,870,971 tons in 1987, and came from five operations in Ottawa, Sandusky, and Wyandot Counties.

The total value[4] of limestone and dolomite sold in 1987 was $165,488,324, with an average price per ton of $3.67.

[4]See footnote 2, p. 10.

An annual average of 1,252 employees worked an average of 206 days to produce limestone and dolomite. Total wages reported in 1987 for 1,252 production employees and 332 nonproduction employees were $38,406,170. The average annual wage, based on those employees for whom wages were reported, was $24,292. An additional 140 employees mined limestone and dolomite along with one or more other mineral commodities.

Primary uses for crushed and broken limestone and dolomite were building, road base, and resurfacing, stone for portland cement concrete, and stone for bituminous concrete. Other major uses for various forms of the stone included aglime (a noncalcined product), the manufacture of portland cement, and riprap.

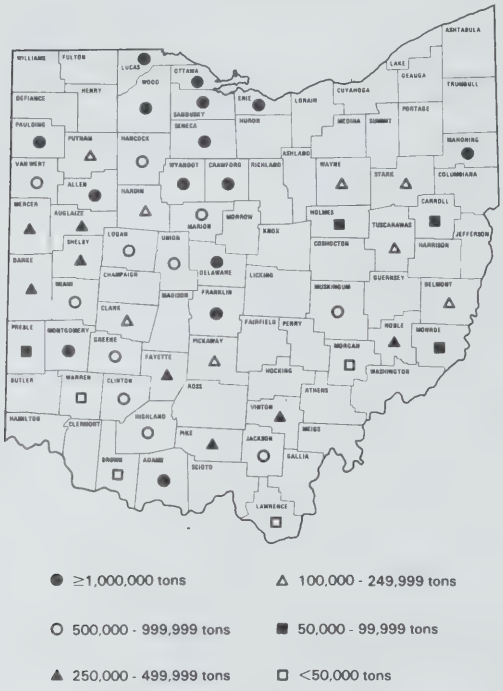


FIGURE 6.—Sales of limestone and dolomite in Ohio in 1987, by county.

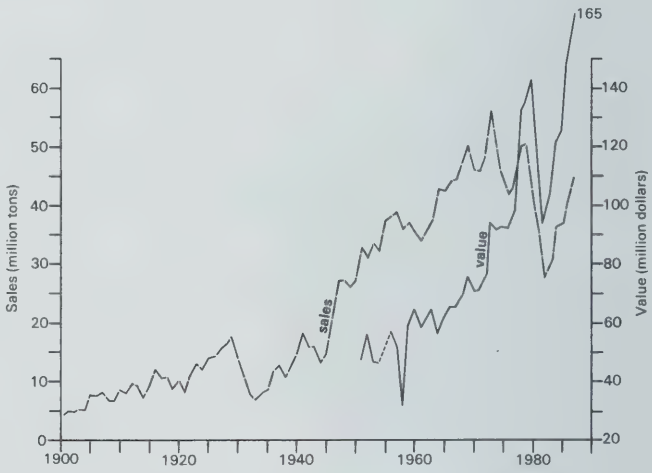


FIGURE 7.—Sales and value of limestone and dolomite in Ohio. Value line dashed where data not available.

Columbus Bituminous Corporation's bituminous concrete plant in Franklin County. Photo taken during 1987 Ohio's Mineral Industries Teachers' Workshop.

TABLE 18.—*1987 Ohio limestone and dolomite sales, by county and type*

County	Tons sold														
	Total, all types	Crushed and broken stone									Dimension stone	For portland cement manufacture	Agricultural stone (aglime)	Raw stone for burning	Unspecified/ other
		Total	Riprap	Metallurgical stone	Stone for portland cement concrete	Stone for bituminous concrete	Building, road base, resurfacing	Railroad ballast	Refractory stone	Unspecified/ other					
Adams	1,566,773	1,508,303	28,444	92,307	76,307	48,040	844,586	267,707		150,912			58,470		
Allen	1,032,768	1,011,304	1,757		11,832	38,464	882,475	63,854		12,922	1,039		9,675		10,750
Auglaize	391,533	384,047	33,688				350,085	274					7,486		
Belmont	121,453	121,453	14,110				107,343								
Brown	1,912	1,912					1,912								
Carroll	70,325	70,325					70,325								
Clark	123,877	123,877					123,877								
Clinton	627,421	568,839	38,878		42,393	77,026	408,042		2,500				58,582		
Crawford	1,157,295	1,076,652	9,875	331,077			644,188	498		91,014			80,643		
Darke	301,652	301,652					301,652								
Delaware	2,608,820	2,587,627	37,345	543			2,546,593	3,146					21,193		
Erie	3,735,405	3,433,693	98,179		785,503	485,448	1,905,076	159,487					124,065		177,647
Fayette	311,809	253,378			9,359	14,051	229,968						58,431		
Franklin	3,781,599	3,781,599					3,781,599								
Greene	991,603	206,481					206,481					588,050	197,072		
Hancock	902,367	894,187	1,902		32,581		645,996	209,008		4,700					8,180
Hardin	137,651	121,920	3,161				118,759						15,731		
Highland	761,759	678,654	11,560	1,033	27,680	21,820	616,561						83,105		
Holmes	83,363	83,363					83,363								
Jackson	516,677	516,677					516,677								
Lawrence	2,057	2,057	1,429				628								
Logan	793,829	435,079	17,124		88,956	48,284	167,208			113,507					358,750
Lucas	2,076,975	1,963,346	113,674		113,625	113,626	1,395,166	113,627		113,628			113,629		
Mahoning	1,253,342	887,827					134,633			753,194		308,481	38,496		18,538
Marion	928,256	868,764	3,468		22,545	34,032	803,121	636		4,962			35,568		23,924
Mercer	388,897	377,994	15,434			11,410	351,150						10,903		
Miami	728,278	627,914	5,975	44,324	43,896	28,446	379,235	12,544		113,494	3,546		96,818		
Monroe	74,960	74,960	20,000							54,960					
Montgomery	1,089,015	795,693					795,693					293,322			
Morgan	7,089	7,089					7,089								
Muskingum	943,510	855,619	46,022		87,890	87,891	593,269	40,547					87,891		
Noble	271,377	271,377	43,325				228,052								
Ottawa	3,143,316	2,932,856	209,461	80,556	811,905	253,501	1,577,433						51,488	158,972	
Paulding	1,136,817	588,695	48,446		44,704	44,704	316,728	44,704	44,704	44,705		503,418	44,704		
Pickaway	186,114	186,114	2,522		41,395	1,250	140,947								
Pike	269,449	224,464	5,560		21,688	14,033	183,183						44,985		
Preble	59,043	54,345	1,454				52,891				4,698				
Putnam	195,371	195,371	2,624				192,747								
Sandusky	3,927,446	442,007	166,739	47,735	17,675	2,758	115,100			92,000			342,637	3,142,802	
Seneca	1,379,814	1,138,670	4,291				1,134,379				25,449		215,695		
Shelby	481,078	480,726	47,949			113,531	272,715	46,531					352		
Stark	162,596	162,596	10,000				152,596								
Tuscarawas	154,803	154,803	1,798				153,005								
Union	805,086	744,581	1,232		42,187		701,162						60,505		
Van Wert	514,789	447,167	61,182		90,255	61,048	88,487	227		145,968			3,213		64,409
Vinton	266,304	223,382					223,382						42,922		
Warren	15,384	15,384					15,384								
Wayne	146,303	146,303					146,303								
Wood	1,279,210	1,026,494	153,888		148,259	148,259	335,159	62,051		178,878			70,467		182,249
Wyandot	3,141,674	2,739,578	18,103	419,910	295,369	147,166	1,363,592	135,555	112,386	247,497			194,188	207,908	
TOTAL	45,048,244	36,797,198	1,280,599	1,017,485	2,856,004	1,794,788	26,405,995	1,160,396	159,590	2,122,341	34,732	1,693,271	2,168,914	3,509,682	844,447

TABLE 19.—*1987 Production of lime from Ohio stone, by county and type*

County	Total tons	Building (tons)	Chemical and industrial (tons)	Refractory (tons)	Other (tons)
Ottawa	79,486	59,742	19,744		
Sandusky	1,680,698		982,711	126,775	571,212
Wyandot	110,787		110,787		
TOTAL	1,870,971[1]	59,742	1,113,242	126,775	571,212

[1]Burning produced a 46.7 percent weight loss.

SAND AND GRAVEL

Sand and gravel were sold or produced by 190 companies at 238 operations in 60 Ohio counties during 1987. Sales[5] of sand and gravel totalled 39,666,280 tons, of which sand comprised 19,638,431 tons and gravel comprised 20,027,849 tons. Hamilton, Franklin, Butler, Portage, and Greene Counties led in sales, accounting for 46.6 percent of the total. Reported known production[5] of sand and gravel totalled 40,465,602 tons in 1987.

A total of 171,832 tons of sand were dredged from Lake Erie, and 89,254 tons of sand and 81,320 tons of gravel were dredged from the Maumee River. No gravel was dredged from Lake Erie in 1987. Total sand and gravel production from Lake Erie and the Maumee River was 342,406 tons in 1987.

The total value[6] of sand and gravel sold in 1987 was $130,516,421, with an average price per ton of $3.29.

An annual average of 915 employees worked an average of 169 days in 1987 to produce sand and gravel. Total wages of $32,286,626 were reported for 915 production employees and 482 nonproduction employees. The average annual wage, based on those employees for whom wages were reported, was $23,300. An additional 7 employees mined sand and gravel along with one or more other mineral commodities.

Road construction and resurfacing, portland cement concrete, building, and bituminous concrete were the major uses for Ohio sand and gravel in 1987.

[5]Please note—Sales and production figures for sand and gravel include material dredged from Lake Erie and the Maumee River.

[6]Includes reported and estimated values. See footnote 2, p. 10.

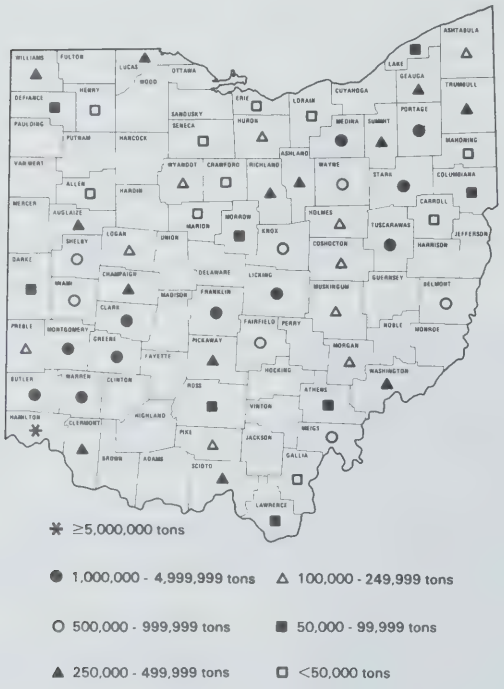


FIGURE 8.—Sales of sand and gravel in Ohio in 1987, by county.

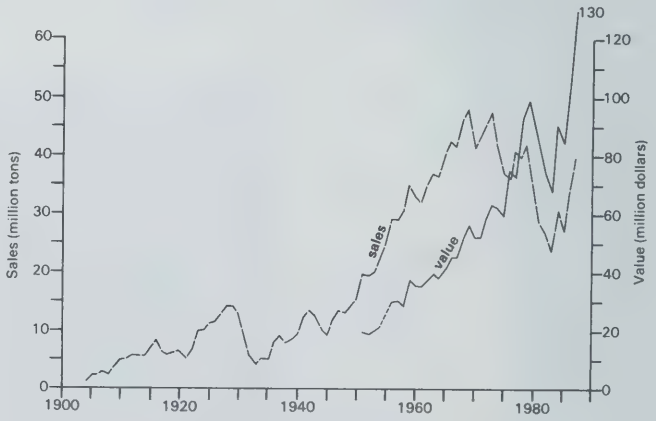


FIGURE 9.—Sales and value of sand and gravel in Ohio. Value line dashed where data not available. Figures from 1984 to 1987 include Lake Erie and Maumee River dredged material.

TABLE 20.—*1987 Ohio sand sales, by county and type*

County	Tons sold							
	Total	Foundry	Portland cement concrete	Bituminous concrete	Building	Road construction, resurfacing	Filtration	Other/ unspecified
Allen	3,431		1,834		237		1,360	
Ashland	120,007				24,245	89,694		6,068
Ashtabula	156,332			8,214	13,000			135,118
Athens	43,829			6,190	2,849	16,079		18,711
Auglaize	180,282		134,815		15,563			29,904
Belmont	328,002		74,477	253,525				
Butler	1,532,542		106,866	89,399	193,591	1,125,539		17,147
Carroll	13,973					13,973		
Champaign	119,030				8,504	84,567		25,959
Clark	509,033		180,768	118,930	20,273	189,062		
Clermont	200,558			59,000				141,558
Columbiana	20,993				5,943			15,050
Coshocton	79,247		640	13,936	10,462	54,209		
Crawford	128							128
Darke	29,980		4,099					25,881
Erie	15,427	2,485						12,942
Fairfield	350,417		177,113	51,704	6,000			115,600
Franklin	1,477,993		3,279	153,140	165,927	1,155,647		
Gallia	5,751	854						4,897
Geauga	224,654		120,591		104,063			
Greene	709,197		60,895	14,350	4,000	201,320	650	427,982
Hamilton	2,918,800		452,265	279,354	142,204	1,544,026		500,951
Henry	16,098					16,098		
Holmes	42,952		19,756		8,459	10,353		4,384
Huron	96,933		983		34,711	59,349	1,890	
Knox	350,522		50,113	11,120	32,550	109,831		146,908
Lake	36,000		7,250	9,000		19,750		
Lawrence	60,774							60,774
Licking	593,844	18,414	23,000	4,392	218,350	248,980		80,708
Logan	121,842		54,456		14,476			52,910
Lorain	7,616							7,616
Lucas	366,185				366,185			
Mahoning	4,661				4,661			
Marion	11,371				11,371			
Medina	829,548			54,648	183,534	529,467		61,899
Meigs	329,457			292,310	26,938	10,209		
Miami	270,174				31	2,000		268,143
Montgomery	509,693		157,645	104,669	78,597	154,643	92	14,047
Morgan	71,271		16,639	23,761	16,640	14,231		
Morrow	21,998				21,942	56		
Muskingum	139,582		13,276	106,384	4,874	256	128	14,664
Pickaway	126,632					126,632		
Pike	204,489		149,031	35,636	17,143	2,679		
Portage	2,172,386		534,076	164,906	331,090	438,987		703,327
Preble	91,775		18,355	9,177	36,710	27,533		
Richland	86,872	29,313	97		736	31,230		25,496
Ross	55,487		18,212	22,362	146			14,767
Scioto	376,917		304,363	52,049	2,702			17,803
Seneca	6,527							6,527
Shelby	291,386		93,855	60,000	58,000	26,500		53,031
Stark	563,527		84,278	145,093	214,270	72,315		47,571
Summit	183,823	4,820			139,448	13,218		26,337
Trumbull	289,125		70,449		98,723	119,953		
Tuscarawas	571,342		62,275	134,334	156,071	205,981		12,681
Warren	443,303					169,525		273,778
Washington	144,453		13,124	23,289	57,514	23,253	16,741	10,532
Wayne	384,913		55,500	15,700				313,713
Williams	256,417		155,787	45,998	7,027		1,607	45,998
Wyandot	207,844		158,661	7,496	30,456	4,084	7,147	
Lake Erie	171,832		105,837	37,499		28,496		
Maumee River	89,254		89,254					
TOTAL	19,638,431	55,886	3,573,914	2,407,565	2,890,216	6,939,725	29,615	3,741,510

TABLE 21.—*1987 Ohio gravel sales, by county and type*

County	Tons sold						
	Total	Building	Portland cement concrete	Bituminous concrete	Road construction, resurfacing	Filtration	Other/ unspecified
Allen	3,842	79				335	3,428
Ashland	171,885	40,684			97,606		33,595
Ashtabula	70,925	11,985		571	2,301	2,679	53,389
Athens	15,277			2,973	10,888		1,416
Auglaize	94,496	714	81,481				12,301
Belmont	338,281		132,429	65,901	23,725		116,226
Butler	2,103,899	452,983	49,568	2,937	1,589,253		9,158
Carroll	33,637				33,637		
Champaign	264,701	56,075			121,693		86,933
Clark	952,779	260,730	186,650	133,917	286,290	450	84,742
Clermont	98,658			49,000			49,658
Columbiana	46,292	28,552					17,740
Coshocton	99,691			3,062	85,524		11,105
Crawford	128						128
Darke	31,898	2,000	2,099				27,799
Defiance	52,965				52,965		
Erie	16,578				15,500		1,078
Fairfield	201,406	21,500	17,000	56,000	27,706		79,200
Franklin	2,508,268	442,968	4,898	164,048	1,896,354		
Gallia	10,565						10,565
Geauga	66,013	27,075			8,469	29,855	614
Greene	935,715	5,000	61,030	32,144	292,700	3,900	540,941
Hamilton	2,944,011	679,055	199,130	75,023	1,622,968	3,957	363,878
Holmes	106,873	28,229	19,573		31,686	21,000	6,385
Huron	3,866	3,866					
Knox	395,246	75,618	31,941	18,965	112,767		155,955
Lake	18,000	3,533	667	3,800		6,000	4,000
Lawrence	20						20
Licking	553,044	86,357	9,500	2,058	308,483		146,646
Logan	71,413						71,413
Mahoning	1,553	1,553					
Marion	18,770						18,770
Medina	238,769	106,590			131,879		300
Meigs	223,298	59,745		146,152	16,906		495
Miami	429,122	8,403		2,000			418,719
Montgomery	1,016,337	288,310	197,100	118,410	222,534	8,874	181,109
Morgan	102,680	17,362	50,592	17,362	17,364		
Morrow	54,214	20,691			25,239	4,395	3,889
Muskingum	83,321	25	15,192	48,230	13,226		6,648
Pickaway	182,225				182,225		
Pike	42,643	853	2,042	8,011	30,771	966	
Portage	1,163,975	279,129	121,456	135,354	371,079		256,957
Preble	133,687	40,107	26,737	18,898	47,945		
Richland	282,752	188,575	100		42,306	20,381	31,390
Ross	37,259	8,152	6,803	13,031	8,115	1,158	
Scioto	66,065		1,170	585	64,310		
Seneca	1,631						1,631
Shelby	409,619		197,745	63,658	84,640		63,576
Stark	766,418	62,647	129,498	193,822	133,286	1,229	245,936
Summit	186,988	128,716			49,553		8,719
Trumbull	30,714	19,014			11,700		
Tuscarawas	581,151	170,733	38,205	99,746	252,951	2,224	17,292
Warren	954,998	331,035			260,767		363,196
Washington	154,856	44,594	15,139	24,526	37,521	9,852	23,224
Wayne	338,785	81,300	63,300	45,000			149,185
Williams	209,202	91,321				9,706	108,175
Wyandot	25,125	16,502		239		6,664	1,720
Maumee River	81,320						81,320
TOTAL	20,027,849	4,192,360	1,661,045	1,545,423	8,624,832	133,625	3,870,564

TABLE 22.—*1987 Ohio Lake Erie and Maumee River sand and gravel production*

Area	Production[1]	
	Cubic yards	Short tons
Lake Erie		
Fairport (sand)	35,489	47,910
Maumee Bay		
Vermilion-Lorain Inner (sand)	91,794	123,922
Vermilion-Lorain Outer (gravel)	[2]	
Maumee River		
Sand	193,397	261,086
Gravel	60,237	81,320
TOTAL	380,917	514,238

[1]Production reported in cubic yards; converted to tons in the ratio of 1 cubic yard equals 1.35 short tons.
[2]No production reported for 1987.

SANDSTONE AND CONGLOMERATE

Sandstone and conglomerate were produced by 17 companies at 31 operations in 17 Ohio counties during 1987. Sales totalled 1,888,899 tons, with Geauga, Tuscarawas, Perry, Ross, and Knox Counties accounting for 84.1 percent of that total. Crushed sandstone and conglomerate accounted for 1,826,392 tons, and dimension stone accounted for 62,507 tons of the total sales. Reported known production of sandstone and conglomerate was 1,972,626 tons in 1987.

The total value[7] of sandstone and conglomerate sold in 1987 was $25,345,393, with an average price per ton of $14.29 for crushed stone and $40.15 for dimension stone. The overall average price per ton was $13.31.

An annual average of 234 employees worked an average of 146 days in 1987 to produce sandstone and conglomerate. Total wages earned in 1987 by 234 production employees and 51 nonproduction employees were $6,222,554. The average annual wage in 1987 was $21,834. An additional 20 employees mined sandstone and conglomerate along with one or more other mineral commodities.

Crushed stone was used primarily for glass sand, foundry sand, construction, and aggregate. Dimension stone was used primarily for rough construction, rough architectural purposes, and finished stone.

[7]Includes reported and estimated values. See footnote 2, p. 10.

FIGURE 10.—Sales of sandstone and conglomerate in Ohio in 1987, by county.

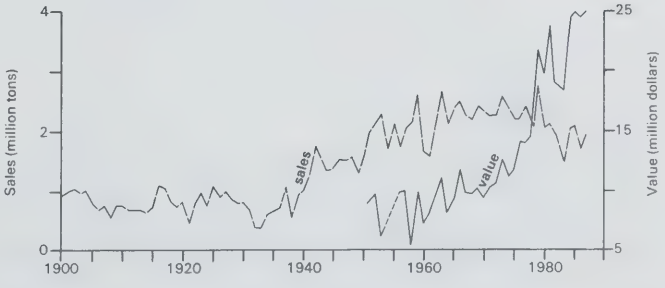
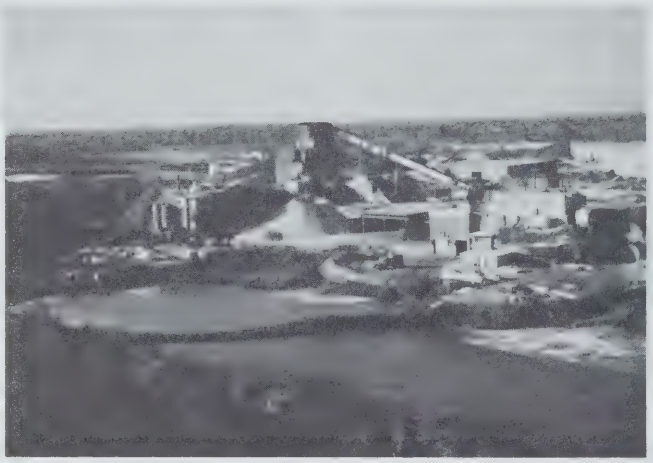


FIGURE 11.—Sales and value of sandstone and conglomerate in Ohio. Value line dashed where data not available.

TABLE 23.—*1987 Ohio sales of crushed sandstone and conglomerate, by county and type*

County	Tons sold												
	Total	Foundry sand	Glass sand	Metallurgical pebble	Refractory	Riprap	Aggregate	Silica flour	Polishing/ grinding sand	Fire and furnace sand	Engine sand	Frac sand	Other/ unspecified
Columbiana	28,079												28,079
Geauga	706,013	175,459	108,214	56,451	16,162	15,000	95,205			19,000	10,925	25,132	184,465
Huron	89,977					89,977							
Knox	155,646	17,736	67,908					55,830			3,086	5,266	5,820
Lorain	75,046						75,046						
Mahoning	18,035												18,035
Perry	257,226	44,328	109,398					88,962					14,538
Ross	195,202	47,910	79,660						4,272		29,742		33,618
Stark	20,000					20,000							
Trumbull	19,445						19,445						
Tuscarawas	258,670	311			678	4,174				28,861			224,646
Washington	3,053					3,053							
TOTAL	1,826,392	285,744	365,180	56,451	16,840	132,204	189,696	144,792	4,272	47,861	43,753	30,398	509,201



R. W. Sidley, Inc.'s silica aggregate operation in Geauga County. See article on critical mineral resource zoning on p. 8. Photo courtesy of R. W. Sidley, Inc.

TABLE 24.—*1987 Ohio sales of dimension sandstone and conglomerate, by county and type*

County	Tons sold								
	Total	Refractory	Rough construction	Rubble	Grindstone	Rough architectural	Finished	Curbing	Flagging
Carroll	620						620		
Coshocton	14,226	1,471				12,755			
Erie	4,101			1,768	3		2,201	5	124
Geauga	9,827		9,827						
Holmes	419					419			
Knox	1,770					1,770			
Lorain	9,583			4,129	13		5,139	13	289
Ross	5,509		5,509						
Scioto	16,452		16,452						
TOTAL	62,507	1,471	31,788	5,897	16	14,944	7,960	18	413

CLAY

Clay was produced by 24 companies at 35 operations in 14 Ohio counties during 1987. Clay sales (including material for captive use) totalled 1,376,016 tons, with Tuscarawas, Greene, Paulding, Stark, and Jackson Counties accounting for 85.2 percent of the total sales. The total value[8] of clay sold in 1987 was $5,534,206, with an average price per ton of $4.02. Reported known production of clay was 1,357,163 tons.

An annual average of 25 employees worked an average of 86 days in 1987 mining clay. Total wages reported in 1987 for 28 production employees and 2 nonproduction employees were $374,727. The average annual wage, based on those employees for whom wages were reported, was $15,614. An additional 140 employees mined clay along with one or more other mineral commodities.

Clay mined in Ohio in 1987 was largely for captive use in the production of common clay products, for cement manufacture, and construction.

[8]Includes reported and estimated values. See footnote 2, p. 10.

TABLE 25.—*1987 Ohio clay sales, by county and type*

County	Tons sold						
	Total	Common clay products	Glazed ware	Vitrified products	Refractories	Cement manufacture	Other/ unspecified
Auglaize	4,255	4,255					
Greene	196,107					196,107	
Hocking	20,785			20,785			
Holmes	47,978	46,690					1,288
Jackson	53,861	40,324			13,537		
Lawrence	17,537	17,537					
Muskingum	20,580	7,602		9,980			2,998
Paulding	126,536					126,536	
Perry	49,830	47,631					2,199
Putnam	800	800					
Stark	57,776	5,537	477		31,210		20,552
Tuscarawas	737,721	427,773	5,000	56,021	53,117		195,810
Wayne	100	100					
Wyandot	42,150	42,150					
TOTAL	1,376,016	640,399	5,477	86,786	97,864	322,643	222,847

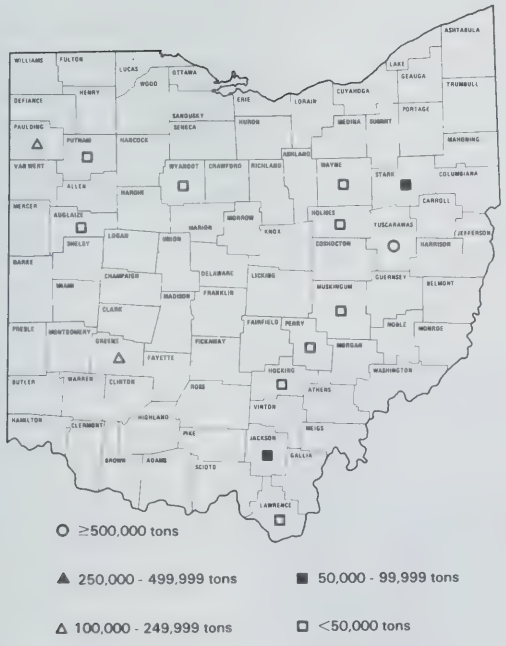


FIGURE 12.—Clay sales in Ohio in 1987, by county.

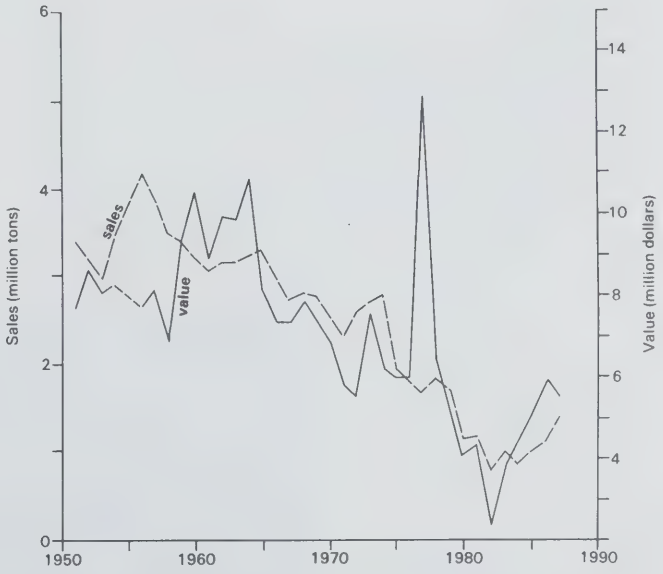


FIGURE 13.—Sales and value of clay in Ohio. Value line dashed where data not available.

SHALE

Shale was produced by 17 companies at 26 operations in 17 Ohio counties during 1987, with production totalling 1,993,120 tons and sales totalling 1,999,384 tons. Tuscarawas, Franklin, Cuyahoga, Marion, and Mahoning Counties accounted for 87.2 percent of the total sales. The total value[9] of shale sold (including material for captive use) in 1987 was $1,956,678, with an average price per ton of $0.98.

An annual average of 27 employees worked an average of 123 days in 1987 mining shale. Total wages reported in 1987 for 27 production employees and 7 nonproduction employees were $390,525. The average annual wage, based on those employees for whom wages were reported, was $13,466. An additional 98 employees mined shale along with one or more other mineral commodities in 1987.

Shale mined in Ohio in 1987 was largely for captive use in the production of common clay products, construction, and lightweight aggregate.

[9]Includes reported and estimated values. See footnote 2, p. 10.

TABLE 26.—*1987 Ohio shale sales, by county and type*

County	Tons sold						
	Total	Common clay products	Glazed ware	Vitrified products	Cement manufacture	Lightweight aggregate	Other/ unspecified
Columbiana	51,995	51,995					
Coshocton	36,142	15,000					21,142
Cuyahoga	233,396					233,396	
Franklin	307,600	307,600					
Harrison	8,000			8,000			
Hocking	19,184			19,184			
Holmes	10,106			10,106			
Jackson	1,769	1,769					
Lawrence	32,990				32,990		
Licking	21,528			21,528			
Mahoning	90,728				90,728		
Marion	109,614	109,614					
Medina	49,959	49,959					
Noble	1,310	1,310					
Perry	11,492						11,492
Stark	11,410		1,910				9,500
Tuscarawas	1,002,161	387,105		6,924			608,132
TOTAL	1,999,384	924,352	1,910	65,742	123,718	233,396	650,266

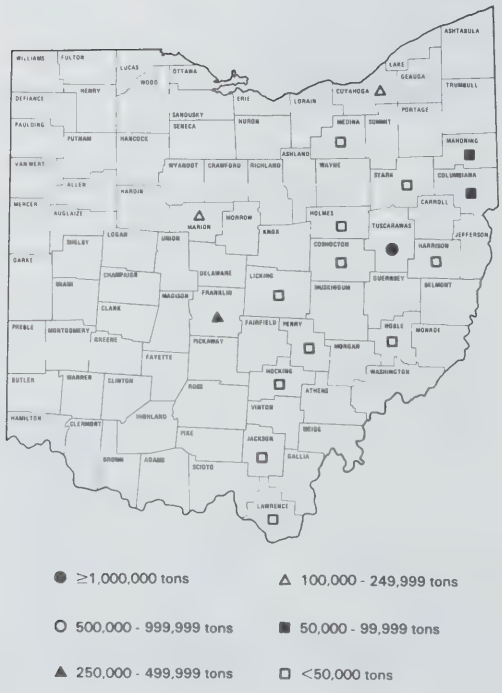


FIGURE 14.—Shale sales in Ohio in 1987, by county.

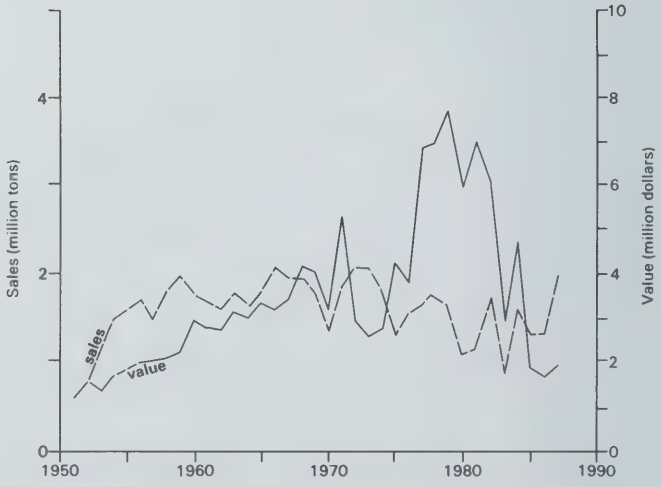


FIGURE 15.—Sales and value of shale in Ohio. Value line dashed where data not available.

GYPSUM

Gypsum was produced by 1 company at 1 operation in Ottawa County during 1987. Gypsum production and sales (including material for captive use) totalled 256,307 tons. The reported value[10] of the gypsum sold was $2,434,918, with an average price per ton of $9.50.

An annual average of 9 employees worked an average of 329 days in 1987 producing gypsum. Total wages reported in 1987 for 9 production employees and 11 nonproduction employees were $781,052. The average annual wage in 1987 was $39,053.

SALT

Salt was produced by 4 companies at 5 operations in 5 Ohio counties during 1987. Rock salt production totalled 2,678,633 tons from 2 underground mines, one each in Cuyahoga and Lake Counties. Three brining operations, one each in Licking, Summit, and Wayne Counties, produced a total of 7,085 tons of salt in brine and 674,895 tons of evaporated salt. Total sales of salt in 1987 amounted to 3,360,613 tons with a total value of $32,002,012. Average price per ton for all salt sold in 1987 was $9.52. Average price per ton of rock salt was $9.40 and of salt in brine and evaporated salt was $9.99.

An annual average of 166 employees worked an average of 312 days in 1987 to produce salt. Total reported wages in 1987 for 166 production employees and 185 nonproduction employees were $11,256,635. The average annual wage in 1987 was $32,070. The primary use for Ohio salt in 1987 was ice control.

PEAT

Peat was produced by 3 companies at 3 operations in 3 Ohio counties during 1987. Peat sales (including material for captive use) totalled 19,056 tons, with Champaign, Wyandot, and Williams Counties accounting for 100 percent of the total sales. The total value of the peat sold in 1987 was $162,904, with an average price per ton of $8.55. Reported known production was 22,764 tons.

No information was reported regarding employment, wages, or days in production.

Peat produced in Ohio was used for mulch, worm culture, and legume inoculation.

[10]Includes reported and estimated values. See footnote 2, p. 10.

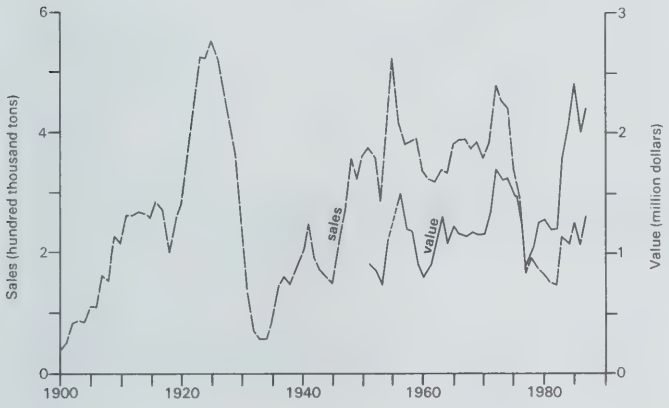


FIGURE 16.—Sales and value of gypsum in Ohio. Value line dashed where data not available. Some figures were calculated because actual figures were not reported in order to maintain confidentiality.

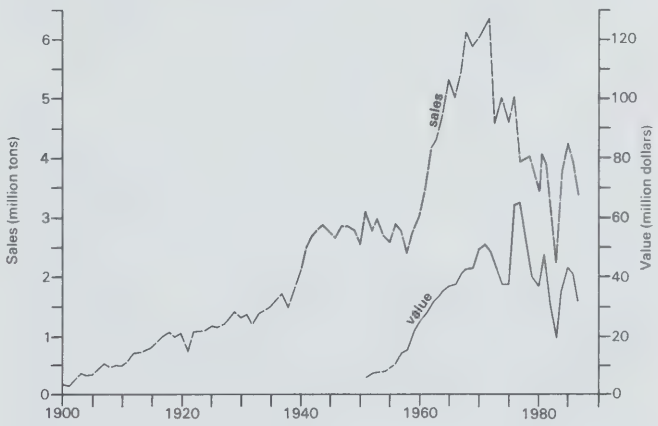


FIGURE 17.—Sales and value of salt in Ohio. Value line dashed where data not available.

Drag line at American Aggregates Corporation's Frank Road sand and gravel operation in Franklin County. Photo taken during 1987 Ohio's Mineral Industries Teachers' Workshop.

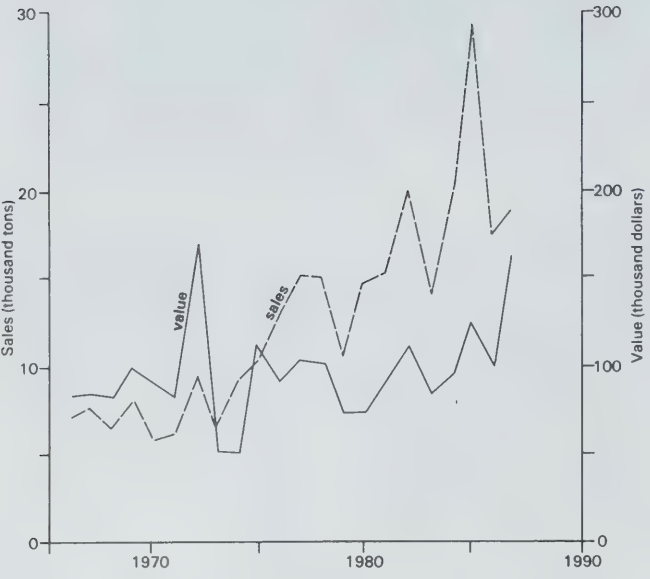


FIGURE 18.—Sales and value of peat in Ohio.

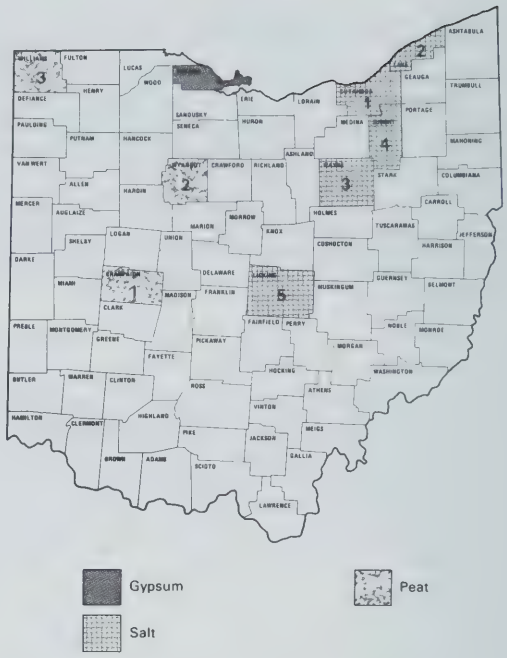


FIGURE 19.—Counties producing gypsum, salt, and peat in Ohio in 1987, and their ranking in sales.

1987 OHIO OIL AND GAS ACTIVITY

This information on oil and gas is modified from M. P. McCormac, 1988, Summary of Ohio oil and gas developments in 1987: Ohio Department of Natural Resources, Division of Oil and Gas

The Ohio oil and gas industry began in Ohio over 150 years ago with the discovery of oil at a Noble County wellsite in 1814. During the late 1800's Ohio became the nation's leading producer of oil and gas. Although Ohio no longer ranks as a national leader in oil and gas production, the state has 63,618 active wells (as of December 31, 1987) that produce significant amounts of oil and gas that supply industrial and residential needs.

The Division of Oil and Gas within the Ohio Department of Natural Resources was created in 1965 and is responsible for overseeing the conservation of Ohio's oil and gas resources and the protection of freshwater supplies during oil and gas operations. A noteworthy change in this year's report is the differentiation of wells actually drilled during 1987 and wells for which completion reports were received during the calendar year. Figure 21 now shows number of wells drilled vs. number of wells completed. Tables 27 and 28 summarize well completions rather than well drilling. A new table has been added listing the 10 most active counties by number of wells drilled; the number of completions and number of permits issued are included for comparison. The table listing number of completions over an 11-year span has been replaced by a table comparing number of permits issued vs. number of wells drilled and completed over a 10-year period. This change has been made because the previous reporting method created a carryover factor from year to year that resulted in a higher number of wells being reported than were actually drilled in a given year.

The Division of Oil and Gas issued 2,425 permits to drill for oil and gas in 1987. This total is the lowest recorded during the past decade. An estimated 1,880 wells were drilled in 1987, which is an increase of 2.1 percent over 1986. However, this total is the second lowest for any of the 10 years. Drilling activity has dropped approximately 50 percent between 1985 and 1987 because of a sharp decline in oil prices caused by a worldwide oil glut.

Wells drilled were reported in 50 of the 88 Ohio counties during 1987, but only 44 counties had reported completions. The Division of Oil and Gas received 1,385 completion reports for wells drilled in 1987. These reports indicate that 1,278 wells, or 92.27 percent, were productive and 107 were dry holes. The productive wells consisted of 366 gas wells, 68 oil wells, and 844 combination wells. The total footage of new wells completed in 1987 was 5,513,636 feet, compared to 11,111,568 feet in 1986. The average depth per well drilled was 3,981 feet, which is a 6.3 percent increase compared to the 1986 average.

A total of 59 new wells drilled were classified as exploratory wells; this figure represents less than 5 percent of all wells completed in Ohio in 1987. Eighteen of the exploratory wells were productive and 41 were dry holes, for a productive rate of 30.5 percent. The Ordovician Rose Run and Cambrian Trempealeau accounted for 56 percent of the exploratory wells in Ohio in 1987.

The "Clinton" sandstone (Silurian) has been the most actively drilled zone every year since 1965. During 1987, 1,080 wells were drilled to the "Clinton"; this figure represents 78 percent of all wells completed in Ohio in 1987. Wells drilled to the "Clinton" had a 98.06 percent productive rate. Completions in the "Clinton" have decreased 36.2 percent since 1985, and the number of completions in this zone in 1987 was the lowest since 1971. The average depth of wells drilled to the "Clinton" was 4,409 feet, an increase of 5.1 percent from 1986.

The Berea Sandstone ("1st and 2nd Berea," Mississip-

pian) was the second most actively drilled formation in 1987. During the year 130 wells were completed in the Berea; these wells represent 9.39 percent of all wells completed in Ohio in 1987. Wells drilled to the Berea had a 90.77 percent productive rate. Noble and Morgan Counties had the most Berea completions, with 26 and 25 wells, respectively.

A total of 55 wells were drilled to the Cambrian Trempealeau dolomite. Morrow and Richland Counties accounted for 81 percent of all Cambrian wells. The percentage of productive Cambrian wells in 1987 was 41.82 percent.

Interest in the Devonian Ohio Shale continued to decline in 1987. Only 31 wells were drilled to the Ohio Shale, compared to 535 wells in 1981.

The number of wells drilled to the Ordovician Rose Run Sandstone increased 141 percent from 1986 to 1987. However, only three of the 29 wells drilled to the Rose Run were completed in that unit. All but one of 26 dry holes were plugged back successfully to the "Clinton." Coshocton County led the Rose Run drilling activity with 18 wells, followed by Tuscarawas County with six wells.

Well-completion reports indicate that Washington County had the most diverse drilling activity. Wells were drilled to eight different geologic zones ranging from the Silurian "Clinton" to the Pennsylvanian Macksburg.

Nine of the 10 most active counties in 1987 were in northeastern Ohio. Tuscarawas County was first with 122 new wells drilled (96 completions filed). Summit County followed with 110 new wells drilled (77 completions filed). Eight of the top-10 counties in 1986 retained their top-10 status in 1987. Columbiana County made its first-ever appearance in the top 10, in seventh place. Mahoning County returned to the top-10 rankings in fourth place after a nine-year absence. Perry County was not in the top 10 for the first time since 1968. Ashtabula County, which had ranked first in 1984 and 1985 and second in 1986 also was absent from the 1987 list of the 10 most active counties.

The total reported crude oil production in Ohio for 1987 was 12,152,567 barrels, a decline of 9.59 percent from 1986. The 1987 production volume is the lowest recorded in seven years and marks the second straight year that production has declined by approximately 10 percent. The dollar value of the crude oil produced in Ohio in 1987 was $211,876,772, an increase of 1.72 percent from 1986. Although oil production was down in 1987, the stability of 1987 oil prices resulted in an increase in the dollar value. The average price per barrel was $17.44, a 12.5 percent increase over 1986. However, the average price per barrel remains 51.9 percent lower than the all-time high of $36.23 recorded in 1980.

Natural gas production in Ohio during 1987 was 166,592,553 MCF, a decline of 8.5 percent from 1986 and of 10.7 percent from the peak in 1984. This figure includes an estimated 1,633,260 MCF of gas utilized on the lease. The dollar value of the natural gas produced in Ohio in 1987 was $425,702,897, a decrease of 16.87 percent ($86,405,577) from 1986. The value of the estimated volume of gas utilized on the lease was not used in computing this value. The average price paid per MCF in 1987 was $2.56, a decrease of 8.9 percent ($0.25) from 1986. The decrease in gas value is due to the decrease in the average price paid per MCF and the decrease in gas production in 1986.

The combined total value of Ohio's 1987 crude oil and natural gas production was $637,579,669, a decrease of 11.5 percent ($82,826,682) from 1986. The 1987 total market value is the lowest since 1979. Total value has declined 36.8 percent ($370,823,770) since peaking in 1984, when the value exceeded $1 billion for the first time.

The Division of Oil and Gas issued 1,709 plugging permits during 1987. This figure represents a 20.5 percent increase in the number of plugging permits from 1986. During 1987, 1,052 wells were plugged. The number of plugging permits issued and the number of wells actually plugged during 1987 are the highest totals for the past decade and the second-highest totals since the Division began keeping records in 1965. The increased plugging activity in 1987 is a continuation of a trend which began in 1982 as drilling activity began to decline. During 1987, the ratio of wells completed to wells plugged was 1.8 to 1, the lowest in the past decade. This ratio has declined steadily since the decade-high ratio of 21.3 to 1 in 1981.

FIGURE 20.—Production of oil and gas in Ohio.

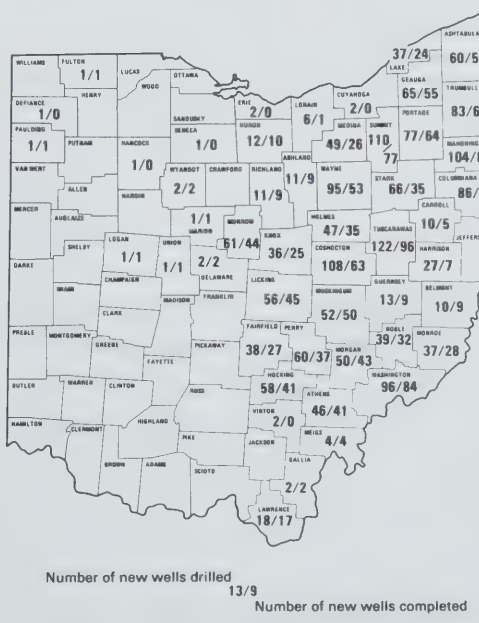


FIGURE 21.—New wells drilled for oil and gas in 1987, by county.

TABLE 27.—*1987 Ohio summary of new oil and gas well completions by county*

County[1]	Gas wells			Oil wells			Combination wells				Total producing wells				Dry holes		Total wells	Total footage	Percent productive
	No.	MCFGPD[2]	Footage	No.	BOPD[2]	Footage	No.	MCFGPD[2]	BOPD[2]	Footage	No.	MCFGPD[2]	BOPD[2]	Footage	No.	Footage			
Ashland				4	21	2,332					4	0	21	2,332	5	3,570	9	5,902	44.44
Ashtabula	4	255	12,986				48	4,834	78	164,072	52	5,089	78	177,058	1	4,120	53	181,178	98.11
Athens	17	1,433	64,857	4	14	3,854	15	661	85	45,193	36	2,094	99	113,904	5	5,460	41	119,364	87.80
Belmont	8	180	17,745								8	180	0	17,745	1	2,900	9	20,645	88.89
Carroll							5	213	59	27,173	5	213	59	27,173			5	27,173	100.00
Columbiana	20	1,127	118,387				47	6,919	100	269,064	67	8,046	100	387,451			67	387,451	100.00
Coshocton	5	702	22,218	1	3	3,335	39	3,738	413	152,234	45	4,440	416	177,787	18	117,875	63	295,662	71.43
Delaware	0	100	0								0	100	0	0	2	6,891	2	6,891	0.00
Fairfield	10	330	11,020	2	10	5,301	13	80	33	26,850	25	410	43	43,171	2	8,225	27	51,396	92.59
Fulton															1	3,004	1	3,004	0.00
Gallia							2	55	3	3,350	2	55	3	3,350			2	3,350	100.00
Geauga	2	3,125	8,371				52	30,755	74	211,486	54	33,880	74	219,857	1	6,683	55	226,540	98.18
Guernsey	0	100	0	1	1	1,313	8	325	42	42,288	9	425	43	43,601			9	43,601	100.00
Harrison	1	60	6,021				6	220	15	36,109	7	280	15	42,130			7	42,130	100.00
Hocking				8	47	24,363	33	1,791	269	108,506	41	1,791	316	132,869			41	132,869	100.00
Holmes	8	275	30,379				19	671	65	67,863	27	946	65	98,242	8	37,658	35	135,900	77.14
Huron	5	388	4,662	4	21	3,916	1	10	4	1,000	10	398	25	9,578			10	9,578	100.00
Knox	3	200	2,184	2	3	1,587	15	1,413	143	42,485	20	1,613	146	46,256	5	10,382	25	56,638	80.00
Lake	6	7,440	17,178				16	6,780	28	52,095	22	14,220	28	69,273	2	5,022	24	74,295	91.67
Lawrence				13	35	10,270					13	0	35	10,270	4	3,015	17	13,285	76.47
Licking	10	396	24,235	14	62	31,328	20	489	98	58,315	44	885	160	113,878	1	2,708	45	116,586	97.78
Logan	1	75	1,428								1	75	0	1,428			1	1,428	100.00
Lorain	1	10	690								1	10	0	690			1	690	100.00
Mahoning	41	26,466	228,337				46	6,015	222	254,073	87	32,481	222	482,410			87	482,410	100.00
Marion															1	2,786	1	2,786	0.00
Medina				2	11	1,325	21	1,325	84	74,535	23	1,325	95	75,860	3	1,939	26	77,799	88.46
Meigs	4	52	11,070								4	52	0	11,070			4	11,070	100.00
Monroe	18	1,644	43,669				10	420	22	24,405	28	2,064	22	68,074			28	68,074	100.00
Morgan	26	1,318	84,767				16	1,013	34	36,948	42	2,331	34	121,715	1	3,878	43	125,593	97.67
Morrow	8	1,090	13,195	6	336	23,819	13	2,487	278	45,663	27	3,577	614	82,677	17	62,170	44	144,847	61.36
Muskingum	8	410	35,237	1	10	1,055	40	2,869	191	161,861	49	3,279	201	198,153	1	4,985	50	203,138	98.00
Noble	20	1,905	33,973				11	813	42	27,933	31	2,718	42	61,906	1	1,748	32	63,654	96.88
Paulding							1	85	5	1,427	1	85	5	1,427			1	1,427	100.00
Perry	4	200	13,225	5	33	17,048	27	855	196	87,300	36	1,055	229	117,573	1	3,032	37	120,605	97.30
Portage	1	125	5,064				61	5,994	417	282,183	62	6,119	417	287,247	2	8,712	64	295,959	96.88
Richland				1	20	3,940	3	170	248	11,990	4	170	268	15,930	5	20,900	9	36,830	44.44
Stark	4	830	19,921				31	2,590	292	137,680	35	3,420	292	157,601			35	157,601	100.00
Summit	10	3,885	39,926				64	9,262	277	254,956	74	13,147	277	294,882	3	7,052	77	301,934	96.10
Trumbull	26	15,595	121,187				36	9,201	68	170,506	62	24,796	68	291,693			62	291,693	100.00
Tuscarawas	18	688	92,730				73	2,739	89	418,399	91	3,427	89	511,129	5	36,894	96	548,023	94.79
Union															1	2,308	1	2,308	0.00
Washington	62	13,899	330,787				18	1,400	36	76,232	80	15,299	36	407,019	4	17,880	84	424,899	95.24
Wayne	15	1,055	54,464				34	1,937	112	122,887	49	2,992	112	177,351	4	15,161	53	192,512	92.45
Wyandot															2	4,918	2	4,918	0.00
TOTAL	366	85,358	1,469,913	68	627	134,786	844	108,129	4,122	3,497,061	1,278	193,487	4,749	5,101,760	107	411,876	1,385	5,513,636	92.27

[1]No well completions were reported for the following counties in 1987: Adams, Allen, Auglaize, Brown, Butler, Champaign, Clark, Clermont, Clinton, Crawford, Cuyahoga, Darke, Defiance, Erie, Fayette, Franklin, Greene, Hamilton, Hancock, Hardin, Henry, Highland, Jackson, Jefferson, Lucas, Madison, Mercer, Miami, Montgomery, Ottawa, Pickaway, Pike, Preble, Putnam, Ross, Sandusky, Scioto, Seneca, Shelby, Van Wert, Vinton, Warren, Williams, and Wood.
The following counties reported drilling, but no completion reports were filed in 1987: Cuyahoga, Defiance, Erie, Hancock, Seneca, and Vinton (see fig. 21).
[2]MCFGPD, thousand cubic feet of gas per day; BOPD, barrels of oil per day.

TABLE 28.—*1987 Ohio summary of new oil and gas well completions by producing zone*

Producing zone	No. of producing wells	No. of dry holes	Total no. of wells	Total footage	Percent productive
Pennsylvanian undifferentiated	17	9	26	20,318	65.38
Upper Mississippian undifferentiated	10	0	10	20,535	100.00
Lower Mississippian "1st & 2nd Berea"	118	12	130	183,897	90.77
Devonian					
Ohio Shale	30	1	31	78,551	96.77
"Big Lime"	10	0	10	9,578	100.00
Oriskany	1	4	5	10,234	20.00
Silurian					
"Newburg"	5	2	7	16,475	71.43
"Clinton-Medina"	1,059	21	1,080	4,761,363	98.06
Lower Ordovician Trenton-Rose Run	5	26	31	205,164	16.13
Cambrian undifferentiated	23	32	55	207,521	41.82
Precambrian	0	0	0	0	0.00
TOTAL	1,278	107	1,385	5,513,636	92.27

TABLE 29.—*Ten most active counties in Ohio in 1987*

1987 Rank	County	1986 Rank	No. of wells drilled	No. of completions reported	No. of permits issued	Total footage drilled
1	Tuscarawas	8	122	96	155	558,023
2	Summit	9	110	77	151	301,934
3	Coshocton	3	108	63	141	295,662
4	Mahoning	16	104	87	133	482,410
5	Washington	4	96	84	121	424,899
6	Wayne	1	95	53	131	192,512
7	Columbiana	18	86	67	84	387,451
8	Trumbull	7	83	62	140	291,693
9	Portage	10	77	64	78	295,959
10	Stark	6	66	35	100	157,601

TABLE 30.—*Ohio well permits issued vs. number of wells drilled and completed, 1978-1987*[1]

Year	No. of well permits issued[2]	No. of wells drilled and completed[2]
1978	5,012	3,415
1979	6,325	3,657
1980	9,718	5,093
1981	11,352	6,082
1982	8,042	4,814
1983	8,228	4,288
1984	8,565	4,958
1985	6,440	3,743
1986	2,440	1,841
1987	2,425	1,385[3]

[1]This table replaces the former table, *Ohio new well completions*. The Ohio Division of Oil and Gas feels this table more accurately reflects drilling trends and minimizes the effects of carryovers from one year to the next.

[2]*No. of well permits issued* represents new and reissued permits. *No. of wells drilled and completed* provided by the American Petroleum Institute.

[3]Although 1,385 wells were reported as completed in 1987, the Division of Oil and Gas estimates 1,880 wells were drilled in 1987.

TABLE 31.—*Ohio crude oil and gas production and reserves, 1977-1987*

Year	Oil		Gas	
	Production[1] (thousand barrels)	Reserves[2] (thousand barrels)	Production[1] (thousand MCF)	Reserves[2] (thousand MCF) (exclusive of storage)
1977	10,359	129,148	99,656	1,093,150
1978	11,154	131,194	115,239	1,177,511
1979	11,953	137,718	124,665	1,313,333
1980	12,928	116,000	138,856	1,436,629
1981	13,551	112,000	141,134	1,689,745
1982	14,571	111,000	138,391	1,730,691
1983	14,971	130,000	151,300	1,557,708
1984	15,271	116,000	186,480	1,405,681
1985	14,988	79,000	182,245	1,585,925
1986	13,442	72,000	182,072	1,578,177
1987	12,153	[3]	166,593[4]	1,539,620

[1]Production figures compiled by Ohio Oil and Gas Association.
[2]Oil reserve figures based on data from American Petroleum Institute (1977-1979) and U.S. Department of Energy, Energy Information Administration (1980-1986). Gas reserve figures based on data from U.S. Bureau of Mines and U.S. Department of Energy, Energy Information Administration.
[3]Figure not available.
[4]Included in this total is an estimated 1,633,260 MCF of gas utilized on the lease.

TABLE 32.—*Ohio counties[1] and their Division of Mines abbreviations[2]*

County	*Abbreviation*	*County*	*Abbreviation*	*County*	*Abbreviation*
Adams	Ads	Hamilton	Hmn	Noble	Ne
Allen	An	Hancock	Hk	Ottawa	Oa
Ashland	Ald	Hardin	Hdn	Paulding	Pg
Ashtabula	Asa	Harrison	Hn	Perry	Py
Athens	As	Henry	Hy	Pickaway	Pky
Auglaize	Ae	Highland	Hd	Pike	Pke
Belmont	Bt	Hocking	Hg	Portage	Pe
Brown	Bn	Holmes	Hs	Preble	Pre
Butler	Br	Huron	Hrn	Putnam	Pm
Carroll	Cl	Jackson	Jkn	Richland	Rd
Champaign	Cpn	Jefferson	Jfn	Ross	Rs
Clark	Ck	Knox	Kx	Sandusky	Sy
Clermont	Ct	Lake	Lke	Scioto	So
Clinton	Cln	Lawrence	Le	Seneca	Sa
Columbiana	Ca	Licking	Lg	Shelby	Shy
Coshocton	Cn	Logan	Lgn	Stark	Sk
Crawford	Cd	Lorain	Ln	Summit	St
Cuyahoga	Cya	Lucas	Ls	Trumbull	Tl
Darke	Dke	Madison	Mdn	Tuscarawas	Ts
Defiance	De	Mahoning	Mg	Union	Un
Delaware	Del	Marion	Mn	Van Wert	Vt
Erie	Ee	Medina	Ma	Vinton	Vn
Fairfield	Fd	Meigs	Ms	Warren	Wan
Fayette	Fe	Mercer	Mr	Washington	Wn
Franklin	Fn	Miami	Mi	Wayne	We
Fulton	Ftn	Monroe	Me	Williams	Ws
Gallia	Ga	Montgomery	My	Wood	Wd
Geauga	Gea	Morgan	Mon	Wyandot	Wt
Greene	Ge	Morrow	Mw		
Guernsey	Gy	Muskingum	Mum		

[1]Fulton and Madison Counties produced no mineral commodities during 1987.
[2]As used for Division of Mines mine numbers.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Anthony Mining Co., Inc. P.O. Box 1298 Steubenville, OH 43952 614-282-7811 Joseph J. Sperlazza, pres.	Pipo #51 (189) Maine 307 (190)	Jefferson Jefferson	19,464 186,192	Jfn-788 Jfn-789	D-0327 D-0307
Arapaho Mining, Inc. P.O. Box 542 New Philadelphia, OH 44663 216-364-1409 Merle A. Clum, pres.	Arapaho Mining, Inc. (353)	Tuscarawas	35,864	Ts-1979	D-0601
Arrow Head Energy, Inc. 1270 Trenton Ave. Ext. Uhrichsville, OH 44683 614-922-3743 Charles L. Smith, pres.	Hopkins-Myers (409)	Tuscarawas	26,704	Ts-1949	D-0394
Avis Coal Co. P.O. Box 1230 Zanesville, OH 43702-1230 614-454-2583 James F. Graham, pres.	Avis Coal Co. (383)	Athens	122,998	As-A[1]	D-0557
B & C Coal, Inc. Rte. 1 Box 88B Albany, OH 45710 614-698-2191 Leo G. Burritt, pres.	Ginsburg Mine (1)	Athens	9,588	As-591	D-0501
B. & D. Coal, Inc. P.O. Box 134 Hamden, OH 45634 614-384-3404 Jerald B. Eberts, pres.	B. & D. Coal #2 (169) B. & D. Coal #1 (298)	Jackson Vinton	30,380 39,698	Jkn-570 Vn-623	D-0207 D-0294
B & N Coal, Inc. P.O. Box 100 Dexter City, OH 45727 614-783-3575 Gilbert Baker, pres.	Pipeline (230) Guiler (231) Shook (303) Lincoln (304)	Noble Noble Washington Washington	47,198 205,068 92,511 113,676	Ne-137 Ne-146 Wn-1004 Wn-1005	D-0329 D-0343 D-0209 D-0183
Bannock Coal Co. 43249 Harrah St. P.O. Box 98 Lafferty, OH 43951 614-968-3582 Tony Gentile, pres.	Shippy (311)	Belmont	387,764	Bt-1147	D-0590
Beaver Creek Resources, Inc. 7219 Salem-Unity Rd. Salem, OH 44460 216-336-3534 Delyte DeYarmon, pres.	Beaver Creek Resources, Inc. (392)	Columbiana	3,068	Ca-855	IM-891
Belden Brick Co. P.O. Box 910 Canton, OH 44701 216-852-2424 William H. Belden, Jr., pres.	Finzer-Belden (261)	Tuscarawas	3,841	Ts-1646	IM-44
Belville Mining Co., Inc. P.O. Box 309 Wheelersburg, OH 45694 614-574-8464 Robert E. & Thomas J. Belville, partners	Brady Creek Mine #1 (202)	Lawrence	148,045	Le-432	D-0107, D-0536
Benedict, Inc. P.O. Box 315 McArthur, OH 45651 614-596-5226 W. E. Engle, pres.	Mitchell Hollow (357) Zaleski (356) Benedict, Inc. (419) Benedict, Inc. (420) Benedict, Inc. (423)	Vinton Vinton Vinton Vinton Vinton	9,890 58,942 43,463 33,424 25,580	Vn-172 Vn-180 Vn-183 Vn-184 Vn-187	D-0445 D-0249 D-0633 D-0609 D-0672
Bennoc, Inc. P.O. Box 208 Morristown, OH 43759 614-782-1330 Larry Conway, pres.	Quaker (229)	Noble	25,722	Ne-136	D-0407
Blum Coal Co. Scio-Carrollton Rd. P.O. Box 232 Carrollton, OH 44615-0232 216-627-2670 Raymond Blum, owner	Pickens Job (71) DeAngelo Pit (321)	Carroll Columbiana	980 33,337	Cl-231 Ca-938	D-0530 IM-937

[1]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Boich Mining Co. P.O. Box 148 Bloomingdale, OH 43910 614-733-7311 Abe Bryan, pres.	Boich Mining Co. (178)	Jefferson	352,843	Jfn-528	D-0247, D-0563
David Boyle, Inc. 2020 Airport Rd. New Lexington, OH 43764 614-342-2059 David R. Boyle, pres.	No. 1 Strip (330)	Hocking	8,655	Hg-321	D-0531
Buckeye-Industrial Mining Co. P.O. Box 389 Lisbon, OH 44432 216-337-9511 John Grisham, pres.	Gamber (446)	Carroll	22,894	Cl-285	D-0693
	Myers (447)	Carroll	54,713	Cl-238	D-0703
	Trares (94)	Columbiana	4,655	Ca-909	D-0164
	Brown (372)	Columbiana	98,037	Ca-932	D-0532
	Vincent (448)	Columbiana	10,220	Ca-960	D-0694
	Ohio WV/Sheridan Mine (435)	Columbiana	21,250	Ca-963	D-0532
	Cope (371)	Columbiana	9,365	Ca-I[2]	D-0592, D-0611
	Springer (449)	Columbiana	22,975	Ca-S[2]	D-0700
	Roberts (366)	Stark	110,039	Sk-236	D-0632
	Dobransky (407)	Stark	183,026	Sk-237	D-0653
C K & K, Inc. Rte. 4 Box 4600 New Philadelphia, OH 44663 614-922-0797 Ronald M. Garrett, pres.	C K & K, Inc. #1 (351)	Tuscarawas	46,745	Ts-1974	D-0580
	C K & K, Inc. #2 (434)	Tuscarawas	4,001	Ts-1993	D-0709
Cardinal Mining, Inc. 4014 Butler-Grange Rd. Salem, OH 44460 216-222-1487 Sonny Rawson & Larry Farmer, owners	O'Berlin Strip (397)	Carroll	8,031	Cl-234	D-0636
	Brown Strip (381)	Columbiana	11,044	Ca-C[2]	D-0585
Center Mining Co. 6950 State Rte. 164 Lisbon, OH 44432 216-424-3938 Robert Ullom & Richard Morlan, partners	Ullom (317)	Columbiana	1,312	Ca-904	D-0144
	C. Ullom (431)	Columbiana	1,919	Ca-961	D-0697
Central Ohio Coal Co. P.O. Box 98 Cumberland, OH 43732 614-962-2013 J. E. Katlic, exec. v. pres.	Muskingum Mine (228)	Muskingum, Noble	3,378,025	Ne-41	D-0056, D-0127, D-0261, D-0274
Churchill Enterprises, Inc. 39140 Churchill Rd. Lisbon, OH 44432 216-424-5113 Robert Johnson, pres.	Churchill Enterprises, Inc. (394)	Columbiana	40,937	Ca-946	IM-960
Coalbrook Mining, Inc. 42891 Kelly Park Rd. Columbiana, OH 44408 216-482-2365 Wilmer A. Davis, pres.	Toth Strip (80)	Columbiana	6,983	Ca-854	D-0389
	Carle (396)	Columbiana	2,342	Ca-962	D-0658
Collins Mining Co. Rte. 2 Box 48 Ironton, OH 45638 614-532-9414 O. C. Collins, owner	Campground Job (380)	Lawrence	59,292	Le-442	D-0498
Commercial Minerals, Inc. 10900 South Ave. P.O. Box 217 North Lima, OH 44452 216-424-1463 W. T. Mackall, pres.	Dungannon (78)	Columbiana	3,673	Ca-829	D-0024
	West Point (98)	Columbiana	83,357	Ca-919	D-0048, D-0412
	Baker (393)	Columbiana	24,142	Ca-930	D-0613
	Hahn (436)	Columbiana	12,094	Ca-957	D-0670
Consolidation Coal Co. Eastern Region Cadiz, OH 43907 614-458-1381 Ben Statler, v. pres.	Mahoning Valley (150)	Belmont	843,919	Hn-700	D-0018, D-0030, D-0051, D-0054, D-0414, D-0434, D-0452
	Franklin 125 (137)	Belmont, Harrison	93,212	Hn-203	D-0174, D-0323
	Oak Park (148)	Harrison	940,305	Hn-658	D-0357
Cravat Coal Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	Kriechbaum (4)	Belmont	49,558	Bt-78	IM-733
	Ward (47)	Belmont	7,418	Bt-1118	D-0396
	Hendrysburg West (52)	Belmont	39,597	Bt-1131	D-0507
	Barnesville Pit (309)	Belmont	130,417	Bt-1143	D-0573
	Neffs Pit (429)	Belmont	16,860	Bt-1160	D-0645

[2]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Cravat Coal Co. (con't)	Puskarich Farm Pit (430)	Harrison	12,050	Hn-232	D-0717
	Rix Mills (222)	Muskingum	12,647	Mum-249	D-0299
	Seven Pit (347)	Tuscarawas	26,909	Ts-1970	D-0562
Crawford Coal Co. 605 W. Lincoln Way Lisbon, OH 44432 216-424-7366 Raymond & R. Ronald Crawford, partners	Crawford Coal Co. (77)	Columbiana	5,396	Ca-827	D-0243
Crooksville Coal Co., Inc. P.O. Box 149 Crooksville, OH 43731 614-982-6651 Ralph L. Allen, pres.	Crooksville Strip (239)	Perry	348,267	Py-317	D-0057, D-0085, D-0189
Crown City Mining, Inc. 6422 E. Main St. Reynoldsburg, OH 43068 614-866-6505 David L. Jamison, pres.	Crown City Mine (125)	Gallia, Lawrence	107,227	Ga-220	D-0092, D-0123, D-0201, D-0221, D-0279, D-0319, D-0503, D-0629
D. & D. Mining Co. 3379 E. Garfield Rd. New Springfield, OH 44443 216-549-3127 Donald Thompson, pres.	Jack Foster (82)	Columbiana	22,097	Ca-872	D-0137
	Dickson (85)	Columbiana	1,832	Ca-888	D-0379
	Lyons Pit (86)	Columbiana	18,619	Ca-891	D-0032
	Saviers Mine (441)	Columbiana	9,484	Ca-D[3]	IM-976
D & L Contractors, Inc. P.O. Box 446 Flushing, OH 43977 614-968-4913 Walter Dombroski, pres.	D & L Strip (185)	Jefferson	78,819	Jfn-780	D-0126
Daron Coal Co., Inc. Rte. 1 Box 167 Dennison, OH 44621 614-922-6829 Ronald Selway, pres.	Waugh (396)	Columbiana	13,908	Ca-958	D-0658
	Harstine (274)	Tuscarawas	105,322	Ts-1924	D-0080
	Marino (344)	Tuscarawas	1,284	Ts-1966	D-0513
	Pleasant Valley-Liggett (433)	Tuscarawas	5,188	Ts-1991	D-0702
Dennis Clay Co. State Rte. 37 P.O. Box 10922 New Lexington, OH 43764 614-342-5269 Tom L. Dennis, owner	Browning-Bateson-Ferguson-Hall (339)	Perry	7,876	Py-331	IM-920
East Fairfield Coal Co. 10900 South Ave. P.O. Box 217 North Lima, OH 44452 216-549-2165 R. E. Mackall, pres.	Franklin Square (74)	Columbiana	56,678	Ca-344	D-0364
	"J" Mine (322)	Columbiana	35,260	Ca-953	D-0539
	"K" Mine (206)	Mahoning	6,042	Mg-603	D-0139
	"C" Mine (210)	Mahoning	6,802	Mg-627	D-0139
	"HP" Mine (211)	Mahoning	166,365	Mg-626	D-0468
East Ohio Limestone Co. P.O. Box 699 Hartville, OH 44632 216-877-2636 Donald D. Phillips, partner	East Ohio Limestone Co. (255)	Stark	15,713	Sk-663	IM-5
Eberhart Coal, Inc. Rte. 3 Box 89 Dover, OH 44622-9507 216-343-5677 Phillip H. Eberhart, pres.	Eberhart #2 Hott Strip (259)	Tuscarawas	66,121	Ts-1526	D-0330
	Eberhart #2 Hott Strip (263)	Tuscarawas	8,043	Ts-1882	D-0013
	Eberhart #2 Hott Strip (270)	Tuscarawas	36,547	Ts-1919	D-0075
	Eberhart #2 Hott Strip (403)	Tuscarawas	7,569	Ts-1992	D-0685
	Eberhart #2 Hott Strip (425)	Tuscarawas	3,222	Ts-1994	IM-985
R. A. Eberts Co. P.O. Box 191 Jackson, OH 45650 614-286-2975 Phil A. Bowman, owner	McArthur Pit (294)	Vinton	202,710	Vn-163	D-0210
Elk Coal, Inc. P.O. Box 165 McArthur, OH 45651 614-596-2132 John L. Cline, pres.	Bowling Strip (171)	Jackson	63,920	Jkn-576	D-0204
	Elk Strip (421)	Vinton	10,360	Vn-185	D-0575
Empire Coal Co. P.O. Box 729 Gnadenhutten, OH 44629 614-254-4395 Bruce Work, pres.	Empire Coal Co. (256)	Tuscarawas	350,441	Ts-115	D-0190, D-0217, D-0398
	Anco Strip (291)	Tuscarawas	76,680	Ts-1963	D-0512
	Dichler-Riggle (292)	Tuscarawas	91,563	Ts-1964	D-0516

[3]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
ENZ, Inc. Rte. 1 Box 444 Dover, OH 44622 216-364-8621 Michael J. Hugo, pres.	Sickafoose Pit (246)	Stark	49,760	Sk-208	D-0295
F. & M. Coal Co. Costonia Rd. Box 171 Toronto, OH 43964 614-544-5203 Edward Fiala, owner	F. & M. Strip (186)	Jefferson	28,449	Jfn-784	D-0091
Fairpoint Coal Co. P.O. Box 158 Fairpoint, OH 43927 614-695-3174 Louie Zaccagnini, pres.	Mel-Worth (19) Shepardstown (139)	Belmont Belmont, Harrison	7,522 7,494	Bt-927 Hn-205	D-0483 D-0155
G & M Mineral Co. P.O. Box 345 Berlin, OH 44610 216-893-2721 Walter Gary, pres.	G & M Mineral Co. (106) G & M Mineral Co. (445)	Coshocton Coshocton	31,439 7,065	Cn-757 Cn-823	D-0477 D-0714
GEX Hardy, Inc. P.O. Box 340 Sugarcreek, OH 44681 216-852-2431 J. J. Blazer, pres.	Flushing (33)	Belmont	188,021	Bt-1099	D-0244, D-0291
Green & Burritt Coal Co., Inc. P.O. Box 422 Wellston, OH 45692 614-384-5780 Wayne Green, pres.	Green Strip #1 (127)	Gallia	22,045	Ga-242	D-0226
Green & Son Coal Co. P.O. Box 422 Wellston, OH 45692 614-384-5780 Wayne & Gary Green, owners	Green Strip II (418)	Vinton	51,925	Vn-182	D-0631
Hillcrest Coal, Ltd. 190 S. Main St. Magnolia, OH 44643 216-866-9388 Kermit & Richard James, Jr., partners	Hillcrest Coal, Ltd. (250)	Stark	11,253	Sk-221	D-0380
Holmes Limestone Co. P.O. Box 295 Berlin, OH 44610 216-893-2721 E. E. Mullet, pres.	241 Plant (161) Wayne Mines (162) Charm Group (164) Rodco (104) Bolivar Mine (363)	Holmes Holmes, Wayne Holmes Holmes Stark	20,487 48,633 344,152 11,737 19,602	Hs-67 Hs-79 Hs-86 Hs-87 Sk-235	IM-768 IM-656, D-0429 D-0402, D-0508, D-0624 D-0352 IM-945
Horizon Coal Corp. 11415 Erie Ave. SW P.O. Box 618 Beach City, OH 44608 216-756-2414 Merle Mullet, pres.	Horizon Strip-Canton (251) Horizon Strip-East Sparta (254) Horizon Strip-Belden (280) Horizon Strip-Ladrach (290)	Stark Stark Tuscarawas Tuscarawas	41,408 35,470 53,901 1,718	Sk-223 Sk-230 Ts-1941 Ts-1962	D-0087 D-0444 D-0224 D-0499
Huberta Coal Co. Box 728 Steubenville, OH 43952 614-282-5301 Teresa C. Schiappa, pres.	Rose Valley-587 (326)	Harrison	56,576	Hn-222	D-0587
J D Mining, Inc. Rte. 4 Box 4113 New Philadelphia, OH 44663 216-339-4900 John R. Demuth, pres.	Demuth Pit (279) Baltzley Valley Mine (346)	Tuscarawas Tuscarawas	33,734 13,861	Ts-1936 Ts-1969	D-0172 D-0572
James Bros. Coal Co. 190 S. Main St. P.O. Box 425 Magnolia, OH 44643 216-866-9388 Kermit & Richard James, Jr., partners	James Bros. Coal Co. (59) James Bros. Coal Co. (61)	Carroll Carroll	47,019 56,190	Cl-17 Cl-162	D-0282 D-0408
Jeffco Sales & Mining Co. 44301 Y & O Rd. Wellsville, OH 43968 216-532-1453 Frank T. Salonica, pres.	Sun Valley #1 (315) Y & O Rd. Mine (395)	Jefferson Columbiana	10,389 3,186	Ca-806 Ca-949	D-0583 D-0625

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Johnson Mining Co. 39150 Churchill Rd. Lisbon, OH 44432 216-424-5113 Robert A. Johnson, owner	Johnson Mining Co. (438) Johnson Mining Co. (361)	Carroll Columbiana	7,065 3,943	Cl-236 Ca-922	D-0683 D-0565
Joyce Coal Co., Inc. P.O. Box 264 St. Clairsville, OH 43950 614-782-1330 Andy Massamino, pres.	Crescent (23) Blaine (388)	Belmont Belmont	32,823 34,747	Bt-980 Bt-1156	D-0258, D-0405 D-0663
K & R Mining, Inc. 14695 Lincoln St. SE P.O. Box 365 Minerva, OH 44657 216-868-7754 Dwight A. Ensley, pres.	Foltz (252) Egan (342)	Stark Stark	181,839 18,708	Sk-225 Sk-234	D-0105 D-0555
K.C.C.I. P.O. Box 24 Morristown, OH 43759 614-782-1087 George Krulock, pres.	Coleman Pit (51)	Belmont	6,794	Bt-1130	D-0465
K D Coal Co., Inc. 3379 E. Garfield Rd. New Springfield, OH 44443 216-549-3979 Kevin E. Thompson, pres.	Baker Mine (73) Benner Mine (369)	Columbiana Columbiana	15,859 42,310	Ca-343 Ca-945	D-0372 IM-958
Kimble Clay & Limestone Co. Rte. 1 Box 386 Dover, OH 44622 216-343-1226 Floyd E. Kimble, owner	Kimble Clay & Limestone Co. (262) Kimble Clay & Limestone Co. (412) Kimble Clay & Limestone Co. (415) Kimble Clay & Limestone Co. (416)	Tuscarawas Tuscarawas Tuscarawas Tuscarawas	121,380 46,377 12,175 1,783	Ts-1727 Ts-1987K[4] Ts-K1[5] Ts-K2[5]	IM-9, D-0203, D-0413 D-0667 D-0203 D-0413
King Quarries, Inc. 2215 Adamsville Rd. Zanesville, OH 43701 614-453-9961 David King, pres.	King Strip (217)	Muskingum	23,964	Mum-237	D-0269
Kohl Industries Rte. 1 Box 1083 New Philadelphia, OH 44663 216-874-4748 Jerry K. Kohl, owner	Black Hawk (248)	Stark	41,983	Sk-217	IM-750
Kymcoal, Inc. P.O. Box 409 Moxahala, OH 43761 614-342-1809 Manford Merckle, pres.	Kymcoal #2 (378)	Gallia	32,792	Ga-247	D-0302
L. & M. Coal Co. 60180 Claysville Rd. Cambridge, OH 43725 614-439-7468 David Lagle, owner	L. & M. Coal Co. (134)	Guernsey	1,618	Gy-303	D-0464
L & M Minerals, Inc. Star Rte. P.O. Box 54 Millersburg, OH 44654 216-893-2227 E. E. Mullet, pres.	Evans (264) Luikert (267) Romig (276) Spring (411)	Tuscarawas Tuscarawas Tuscarawas Tuscarawas	18,284 12,880 8,829 6,471	Ts-1884 Ts-1914 Ts-1930 Ts-1982	IM-6 IM-741 IM-6 D-0701
LaMay Industries, Inc. Box 965 Jackson, OH 45640 614-682-7787 C. Harold Bowman, pres.	Gilmore Pit (175)	Jackson	215,122	Jkn-1054	D-0205
Liberty Coal Co. 1270 Trenton Ave. Ext. Uhrichsville, OH 44683 614-922-3742 Charles L. Smith, pres.	Barnhill (413)	Tuscarawas	2,157	Ts-1987L[4]	D-0621
Lisbon Coal Crushers, Inc. 37544 Hunters Camp Rd. P.O. Box 492 Lisbon, OH 44432 216-424-9559 William T. Lewis, pres.	Sell-Mattevi (373)	Columbiana	117,329	Ca-939	IM-953

[4]This mine number has been duplicated for another company.
[5]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Loase Coal Co. P.O. Box 369 Bethesda, OH 43719 614-484-4287 William E. Loase, owner	Holloway Strip (376)	Belmont	2,007	Bt-1144	D-0571
M & S Coal Co., Inc. 45542 Cream Ridge Rd. Lisbon, OH 44432 216-385-0304 Christopher Potts, pres.	Todd (81) Gaydos (105)	Columbiana Columbiana	2,429 13,026	Ca-863 Ca-MS[6]	D-0430 D-0238
Mac Mining Co. P.O. Box 218 Carrollton, OH 44615 216-627-5154 James L. Myers & William F. Cattrell, partners	CAM #4 (70)	Carroll	33,721	Cl-230	D-0495
Mackra Minerals P.O. Box 218 Carrollton, OH 44615 216-739-5011 L. Lee Krabill, partner	Murray-Anthony (191)	Jefferson	8,852	Jfn-790	D-0336
Red Malcuit, Inc. 707 S. Wooster Ave. P.O. Box 166 Strasburg, OH 44680 216-878-7114 Mark A. Malcuit, pres.	RMI #1 (269)	Tuscarawas	51,716	Ts-1918	D-0236
Mansfield Hawk Mining, Inc. P.O. Box 247 East Palestine, OH 44413 216-426-9680 Larry V. Hawk, pres.	Birchfield Strip #4 (102)	Columbiana	12,932	Ca-931	D-0485
Marietta Coal Co. 67705 Friends Church Rd. St. Clairsville, OH 43950 614-695-2197 George Nicolozakes, pres.	Borovich-Neitzelt-Suter-Seaway (13) Barack-Henthorne et al. (38) Seabright-Bigley-Taylor (39) Consol (42) Oliver-Clark-Underwood-Matusik (58) Lude (53) Sikole-Ludwig-Mayhugh (54) Roscoe-Pickering (384) Baltimore Coal-Presutti (424) Kurth-Graham (386)	Belmont Belmont Belmont Belmont Belmont Belmont Belmont Belmont Belmont Belmont	100,981 56,218 11,414 84,679 61,831 81,735 3,412 43,120 14,024 68,550	Bt-147 Bt-1104 Bt-1105 Bt-1109 Bt-1129 Bt-1132 Bt-1133 Bt-1145 Bt-1150 Bt-1152	D-0022 D-0088 D-0333 D-0270 D-0491 D-0515 D-0521 D-0558 D-0597 D-0635
Ted Mesmer & Sons, Inc. 10950 Woodworth Rd. North Lima, OH 44452 216-549-2385 Robert Mesmer, v. pres.	V Pts. Mine (204)	Mahoning	18,506	Mg-59	D-0383
Midway Coal, Inc. 8250 Arrow Rd. SW P.O. Box 98 Minerva, OH 44657 216-868-6080 Arnold Spears, pres.	Midway Coal, Inc. (60)	Carroll	6,820	Cl-22	D-0358
Miller Mining, Inc. Rte. 2 Box 254 Sugarcreek, OH 44681 216-852-4012 Raymond Miller, pres.	Raber #5 (333) Trail Pit (426) Hershberger-Beachy-Troyer (343) Houston-Schneiter-Kane (350) Stony Point (414)	Holmes Holmes Tuscarawas Tuscarawas Tuscarawas	48,495 5,673 45,421 25,254 16,120	Hs-91 Hs-94 Ts-1958 Ts-1973 Ts-1990	D-0567 D-0699 D-0460 D-0584 D-0654
Milton Mining Co., Inc. P.O. Box 548 Jackson, OH 45640 614-682-7787 Keith Bowman, pres.	Greasy #1 (167)	Jackson	172,414	Jkn-548	D-0368
Mudsock Minerals, Inc. P.O. Box 963 New Philadelphia, OH 44663 216-343-2200 Raymond J. Nowak, pres.	Breyer (410)	Tuscarawas	29,455	Ts-1988	D-0640
Muskingum Mining, Inc. 6422 East Main St. Reynoldsburg, OH 43068 614-256-6381 David Jamison, pres.	Muskingum Mine (216)	Muskingum	183,426	Mum-206	D-0007, D-0154, D-0181, D-0235, D-0342, D-0447

[6]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Nacco Mining Co. Central Division 12800 Shaker Blvd. Cleveland, OH 44120 216-752-1000 Otis Bennett, Jr., pres.	Powhatan #6 (3)	Belmont	905,701	Bt-68	D-0341
Carl Noble & Son, Inc. P.O. Box 25 Harlem Springs, OH 44631 216-739-3311 Larry Noble, pres.	Noble Strip (427)	Carroll	997	Cl-237	D-0710
Nutter Bros. Coal Co., Inc. P.O. Box 190 New Lexington, OH 43766 614-394-2681 James P. Nutter, pres.	Nutter Bros. Coal Co., Inc. (2)	Athens	18,114	As-NB[7]	D-0457
Oak Grove Coal Co. 2072 Mulga Rd. E. Eighth St. Wellston, OH 45692 614-384-5770 Dan Walton, pres.	Oak Grove Coal Co. (432)	Jackson	1,589	Jkn-1063	D-0648
Ohio Coal & Construction Corp. P.O. Box 2388 Wintersville, OH 43952 614-264-7704 Richard Delatore, pres.	No. 38 Strip (6)	Belmont	6,744	Bt-91	D-0448
	Ayers Stone Plant (18)	Belmont	4,385	Bt-905	D-0544
	No. 38 Strip (35)	Belmont	29,998	Bt-1101	D-0166, D-0637
	No. 31 Strip (43)	Belmont	1,101	Bt-1111	D-0256
	No. 38 Strip (48)	Belmont	30,750	Bt-1125	D-0484
	Ayers Stone Quarry (49)	Belmont	4,682	Bt-1126	D-0486
	No. 39 Strip (306)	Belmont	31,797	Bt-1141	D-0486
	No. 31 Strip (370)	Belmont	39,245	Bt-1149	D-0411
	No. 38 Strip (387)	Belmont	56,207	Bt-1155	D-0637
	No. 30 Strip (197)	Jefferson	28,691	Jfn-801	D-0525
	No. 36 Strip (337)	Jefferson	204,476	Jfn-804	D-0564
	No. 36 Greentown (401)	Jefferson	98,697	Jfn-807	D-0642
	No. 38 Medill (382)	Jefferson	3,008	Jfn-1296	D-0345
Ohio Edison Co. 76 S. Main St. Akron, OH 44308 216-384-5298 Justin T. Rogers, Jr., pres.	Ohio Edison Co. Strip Mine (193)	Jefferson	167,189	Jfn-1267	D-0167
Ohio River Collieries, Inc. P.O. Box 128 Bannock, OH 43972 614-968-3504 Tony Gentile, pres.	Miller Pit (10)	Belmont	29,101	Bt-137	D-0338
	Black Oak (391)	Belmont	139,970	Bt-948	D-0348
	Negus Strip (25)	Belmont	6,841	Bt-992	D-0305
	7400 Pit (27)	Belmont	27,912	Bt-1074	D-0340
	Saffell (36)	Belmont	13,262	Bt-1102	D-0340
Oxford Minerals, Inc. 839 Second St. SW Suite B New Philadelphia, OH 44663 216-339-6589 John C. Jensen, pres.	Milliken Mine (374)	Coshocton	5,952	Cn-817	D-0600
Peabody Coal Co. 1951 Barrett Ct. P.O. Box 1981 Henderson, KY 42420 502-827-0800 Howard W. Williams, pres.	Simco Mine (112)	Coshocton	278,392	Cn-799[8]	D-0023
	Sunnyhill #9 South (235)	Perry	567,228	Py-265	D-0324
	Sunnyhill #9 North (236)	Perry	752,219	Py-271	D-0326
Puskarich Limestone Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	Harlem Springs (62)	Carroll	4,774	Cl-183	IM-7
Puskarich Mining, Inc. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	New Cumberland Pit (268)	Tuscarawas	53,247	Ts-1917	D-0293
Quality Coal Co. Rte. 1 Cheshire, OH 45620 614-992-6637 Jay Hall, Jr., pres.	Broken Arrow (174)	Jackson	32,027	Jkn-584	D-0427
	Buckeye Furnace (379)	Jackson	363,634	Jkn-1061	D-0627
	Church (359)	Vinton	200,977	Vn-181	D-0219
	Sentry (301)	Vinton	24,687	Vn-655	D-0004

[7]No mine number has been assigned by the Division of Mines.
[8]Peabody Coal Co. operated this mine from August through December 1987. See also Simco-Peabody Co.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Quarto Mining Co. Subsidiary of Consolidation Coal Co. 1029 Market St. P.O. Box 231 Clarington, OH 43915 614-458-1381 Ben Statler, v. pres.	Powhatan #4 (215)	Monroe	2,116,550	Me-4[9]	D-0339
R. & E. Coal Co. 8693 Bender St. Navarre, OH 44662 216-879-5864 Rafael F. Colucy, pres.	R. & E. Coal Co. (275)	Tuscarawas	11,022	Ts-1925	D-0606
R & F Coal Co. 538 North Main St. P.O. Box 247 Cadiz, OH 43907 614-942-2186 Jack Cox, pres.	Hollingsworth (15)	Belmont	474	Bt-153	D-0081
	Phillips (24)	Belmont	47,113	Bt-984	D-0263
	Loy-McFarland (30)	Belmont	78,228	Bt-1095	D-0096
	Collins (31)	Belmont	131,712	Bt-1097	D-0143
	Shephard (37)	Belmont	4,652	Bt-1103	D-0312
	Burson (46)	Belmont	44,465	Bt-1117	D-0263
	Wharton-Cross (56)	Belmont	80,807	Bt-1137	D-0450
	MacMillan-Shephard (308)	Belmont	218,082	Bt-1139	D-0452
	Ferguson-Fowkes (310)	Belmont	143,677	Bt-1146	D-0561
	Yoe-Kemp (312)	Belmont	145,153	Bt-1148	D-0553
	Cheslock (385)	Belmont	212,931	Bt-1151	D-0551
	Egypt Valley East (313)	Belmont	416,532	Bt-1154	D-0510
	Yudasz-Mahan (389)	Belmont	123,812	Bt-1158	D-0657
	Michener-Rinkes (390)	Belmont	44,353	Bt-1159	D-0643
	Watson-Huhn (314)	Belmont, Guernsey	102,764	Bt-W[10]	D-0262
	Courtwright (124)	Coshocton	74,340	Cn-768	D-0208
	Bartolec (123)	Coshocton	124,722	Cn-779	D-0320
	Roahrig (115)	Coshocton, Guernsey	61,897	Cn-803	D-0253
	Frye (117)	Coshocton	8,969	Cn-807	D-0370
	Ross-Isleta (120)	Coshocton, Guernsey	126,821	Cn-811	D-0467
	Adams-Hamilton (121)	Coshocton	241,095	Cn-812	D-0466
	Wentz-Green (122)	Coshocton	149,920	Cn-814	D-0489
	Taylor (398)	Coshocton	26,145	Cn-820	D-0623
	Hathaway-Isleta (442)	Coshocton	9,076	Cn-HI[10]	D-0673
	Hart (130)	Guernsey, Tuscarawas	171,972	Gy-300	D-0177
	Croskey (145)	Harrison	26,047	Hn-216	D-0194
	Lamborn (147)	Harrison	102,013	Hn-218	D-0436
	Anderson-Phillips (325)	Harrison	226,629	Hn-221	D-0527
	Reppart (327)	Harrison	216,580	Hn-223	D-0552
	Rinkes (156)	Harrison	33,023	Hn-224	D-0416
	Tasa (399)	Harrison	77,024	Hn-225	D-0593
	Duncanwood (443)	Harrison	31,122	Hn-227	D-0681
	Mihelios-Pruneski (153)	Harrison	145,308	Hn-739	D-0119
	Penova-Myers (154)	Harrison	2,872	Hn-746	D-0073
	Matusek-Heil (155)	Harrison, Jefferson	354,657	Hn-M[10]	D-0476
	Varkony-Kross-Polen (183)	Jefferson	228,981	Jfn-720	D-0158
	Cochran-Swad (336)	Jefferson	47,290	Jfn-802	D-0500
	Flohr-Green (402)	Jefferson	38,643	Jfn-FG[10]	D-0682
	Flood-Cline (234)	Noble	73,544	Ne-FC[10]	D-0453
	Gibson (232)	Noble	1,565	Ne-G[10]	D-0114
	Tusco-Mills (348)	Tuscarawas	42,446	Ts-1971	D-0568
	Furbay-Beem (352)	Tuscarawas	69,533	Ts-1978	D-0582
	Ott-Hagloch (375)	Tuscarawas	12,637	Ts-1996	D-0612
R & R Minerals, Inc. T.R. 319, 7360 Skyview Rd. Millersburg, OH 44654 216-674-4926 Gary R. Ross, pres.	Orange Pit (444)	Coshocton	1,650	Cn-822	D-0708
R & S Coal Co., Inc. Rte. 1 Box 229 Hamden, OH 45634 614-384-5282 Roger Eberts, pres.	R & S Strip (295)	Vinton	17,059	Vn-173	D-0197
R. T. G., Inc. P.O. Box 250 Byesville, OH 43723 614-685-8383 James E. Rossiter, pres.	R. T. G. #5 (323)	Guernsey	67,003	Gy-305	D-0578
Regal Mining, Inc. 1270 Trenton Ave. Ext. Uhrichsville, OH 44683 614-922-3743 Charles L. Smith, pres.	Blum-Noble (64)	Carroll	8,626	Cl-216	D-0150
	Camp Ecco (360)	Carroll	46,540	Cl-233	D-0628

[9]Consolidation Coal Co. purchased this mine in April 1987.
[10]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
Robinson & Sons Mining 35667 State Rte. 30 Lisbon, OH 44432 216-424-7489 Danny L. Robinson, owner	Robinson Mine (97)	Columbiana	311	Ca-918	D-0395
Royal Oak Industries, Inc. P.O. Box 626 Jackson, OH 45640 614-682-7787 Phil A. Bowman, pres.	Liberty Mine (177)	Jackson	132,777	Jkn-1059	D-0494
S. & D. Construction Corp. Rte. 1 Toronto, OH 43964 614-544-5616 M. J. Rankin, pres.	Rankin Mine (196)	Jefferson	37,077	Jfn-797	D-0469
Saginaw Mining Co. 1100 Superior Ave. P.O. Box 6508 Cleveland, OH 44114 216-861-3300 R. D. Thompson, pres.	Saginaw Mine (16)	Belmont	519,954	Bt-643	D-0328
Sand Ridge Coal Co. 2619 National Rd. Zanesville, OH 43701 614-454-9541 Charles A. Murrey, owner	Moore Pit (428)	Perry	23	Py-SR[11]	D-0554
Sands Hill Coal Co., Inc. 1203 N. Pennsylvania Ave. Wellston, OH 45692 614-384-5659 Jack Huffman, pres.	Sands Hill Strip #2 (176) Sands Hill Strip (299)	Jackson Vinton	238,469 180,082	Jkn-1055 Vn-641	D-0347 D-0309
Sands Mining Corp. 3445 Adamsville Rd. P.O. Box 2848 Zanesville, OH 43701 614-454-1483 Gene Sands, pres.	Sands #3 (404) Tinnel Coal Co., Inc. (405)	Muskingum Muskingum	76,734 1,951	Mum-260 Mum-263	D-0254 D-0089
Schiappa Coal Co., Inc. P.O. Box 728 Steubenville, OH 43952 614-282-5301 Teresa C. Schiappa, pres.	No. 43 Strip (179) Smith 487 (195)	Jefferson Jefferson	41,199 37,939	Jfn-673 Jfn-795	D-0188 D-0487
Shawnee Coal Co. P.O. Box 869 Zanesville, OH 43701 614-454-2583 James F. Graham, pres.	Shawnee Coal Co. (243)	Perry	3,285	Py-326	D-0318
Simco-Peabody Co. 1951 Barrett Ct. P.O. Box 1981 Henderson, KY 42420 502-827-0800 Howard W. Williams, pres.	Simco-Peabody (112)	Coshocton	414,400	Cn-799[12]	D-0023
Southern Ohio Coal Co. P.O. Box 490 Athens, OH 45701 614-286-5051 J. E. Katlic, exec. v. pres.	Meigs Mine #1 (212) Meigs Mine #2 (213) Raccoon Mine #3 (300)	Meigs Meigs Vinton	992,576 2,909,283 1,049,242	Ms-293 Ms-294 Vn-652	D-0354 D-0355 D-0463
Star Mining Co., Inc. 3549 Marietta Rd. SE Junction City, OH 43748 614-342-1440 Bruce Schwartz, pres.	Adcock (364)	Perry	80,098	Py-335	D-0615
Stewart Coal Co. Lake Alma Rd. Wellston, OH 45692 614-286-4696 William F. Stewart, owner	Stewart Mine (172)	Jackson	69,113	Jkn-578	D-0239
Stewart Construction Co. 289 Frank Smith Rd. Wellston, OH 45692 614-384-2646 Walter Stewart, owner	Elk (422)	Vinton	11,727	Vn-186	D-0638

[11]No mine number has been assigned by the Division of Mines.
[12]Simco-Peabody Co. operated this mine from January through July 1987. See also Peabody Coal Co.

1987 OHIO ALPHABETICAL DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	1987 production (tons)	State mine number	Division of Reclamation permit number
T. P. Mining, Inc. 46938 Almar Circle St. Clairsville, OH 43950 614-269-9219 Thomas Petrozzi, pres.	Monroe Strip (143) Monroe Strip (406)	Harrison Harrison	11,583 23,796	Hn-210 Hn-226	D-0277 D-0605
Thompson Bros. Mining Co. 3379 E. Garfield Rd. New Springfield, OH 44443 216-549-3979 J. E. Thompson, pres.	Peres Mine (205)	Mahoning	65,139	Mg-65	D-0374
Transpacific Technology of Ohio, Inc. 3434 State Rte. 345 New Lexington, OH 43764 614-342-1915 Michael Clay, pres.	Rehoboth Reclamation Project (368)	Perry	24,678	Py-332	D-0610
Tri-State Coal Sales, Inc. State Rte. 345 Rte. 2 P.O. Box 754 Crooksville, OH 43731 614-342-3512 Steven L. Allen, pres.	Saltillo (240)	Perry	25,529	Py-317T[13]	D-0461
Valley Coal Corp. P.O. Box 148 Union Furnace, OH 43158 304-773-5531 Velma Zuspan, pres.	Bumgardner Pit (157) Darmac (158) Tansky Pit (331)	Hocking Hocking Hocking	3,923 39,960 19,660	Hg-284 Hg-295 Hg-V[14]	D-0456 D-0304 D-0519
Valley Mining, Inc. Rte. 1 Box 158B Dennison, OH 44621 614-922-3942 Kenneth E. Brown, pres.	Goose Run-Perrin Run (187) Putnam (288) S & C Development (354) Fouts-Edwards (417)	Jefferson Tuscarawas Tuscarawas Tuscarawas	180,166 11,195 56,489 7,366	Jfn-785 Ts-1957 Ts-1980 Ts-1983	D-0090, D-0473 D-0474 D-0604 D-0690
Varkony Mining Co. R.D. 5 Cadiz, OH 43907 614-937-2777 Stephen Varkony, owner	Varkony Mining Co. (146)	Harrison	35,507	Hn-217	D-0440
Vic Mining, Inc. Rte. 1 Box 355A Dover, OH 44622 216-343-1041 Victoria J. Lahmers, pres.	Newport Pit Strip (377)	Tuscarawas	15,112	Ts-1965	D-0569
W.B. Coal Co. R.D. 1 Box 40 Bloomingdale, OH 43910 614-282-6503 Wayne Boich, owner	McGinness Bros. Strip (149) McGinness Bros. Strip (144)	Harrison Harrison	77,712 60,448	Hn-694 Hn-738	D-0135 D-0376
Waterloo Coal Co. P.O. Box 177 Oak Hill, OH 45656 614-682-7788 Harold Bowman, pres.	Bowman Strip (165)	Jackson	351,063	Jkn-367	IM-774, D-0273, D-0286, D-0594
Weirton Construction Co. 401 Pennsylvania Ave. Weirton, WV 26062 304-748-1400 Donald R. Donell, pres.	#19 (180)	Jefferson	156,860	Jfn-687	C-1105, D-0404
Wilmot Mining Co. P.O. Box 185 Wilmot, OH 44689 216-359-5411 Thomas R. Eddy, pres.	Rte. 43 (341) Muskingham (408)	Stark Stark	9,890 45,475	Sk-233 Sk-239	D-0432 IM-973
Y & O Coal Co. P.O. Box 1000 St. Clairsville, OH 43950 614-695-4117 Jack Schomaker, pres.	Nelms #2 (136)	Harrison	340,099	Hn-169	D-0424
Zimnox Coal Co. 1211 Third St. Brilliant, OH 43913 614-598-4111 Walter Zimnox, pres.	Zimnox #4 (181)	Jefferson	62,450	Jfn-703	D-0112, D-0194
Zoar Mining Co. P.O. Box 550 Zoar, OH 44697 216-874-2434 Peter C. Johnson, pres.	Zoar Mining Co. (257) Zoar Mining Co. (258)	Tuscarawas Tuscarawas	1,756 5,838	Ts-538 Ts-540	IM-27 IM-28

[13]This mine number has been duplicated for another company.
[14]No mine number has been assigned by the Division of Mines.

1987 OHIO DIRECTORY OF REPORTING COAL-WASHING PLANTS AND ASSOCIATED FACILITIES, BY COUNTY

County	Name, address, telephone number, and president/owner/manager of company	Name of plant	Township	State mine number	Division of Reclamation permit number	Type of facility
Belmont	Anco Mining, Inc. 42410 National Rd. Belmont, OH 43718 614-782-1595 Ralph W. Anderson, pres.	Anco Mining Office/Shop	Richland	Bt-1140		office/shop
	Bannock Coal Co. 43249 Harrah St. P.O. Box 98 Lafferty, OH 43951 614-968-3582 Tony Gentile, pres.	Bannock Coal Shops		Bt-1127		shops
	Consolidation Coal Co. Eastern Region Cadiz, OH 43907 614-458-1381 Ben Statler, v. pres.	General Services 105	Wheeling	Hn-5		general services
	Cravat Coal Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	Bellaire River Dock Lynn Tipple Holloway Tipple #1	Pultney Washington, York Flushing	Bt-876 Bt-878 Bt-963	 D-0230 	dock prep plant—jig, flotation tipple
	Marietta Coal Co. 67705 Friends Church Rd. St. Clairsville, OH 43950 614-695-2197 George Nicolozakes, pres.	Loading Dock	Pultney	Bt-936	D-0216	loading dock, prep plant—jig, flotation, centrifugal dryer, crushers, screens
	Nacco Mining Co. Central Division 12800 Shaker Blvd. Cleveland, OH 44120 216-752-1000 Otis Bennett, Jr., pres.	Powhatan #6	Washington	Bt-68	D-0341	prep plant—jigs, cyclones, centrifuges, thickeners, filters, screens
	North American Coal Corp. 12800 Shaker Blvd. Cleveland, OH 44120 216-752-1000 Otis Bennett, Jr., pres.	Central Shop	York	Bt-1000		central shop
	Ohio River Collieries, Inc. P.O. Box 128 Bannock, OH 43972 614-968-3504 Tony Gentile, pres.	Amber Tipple Lafferty Tipple Lafferty Truck Shop	Union Union Union	Bt-844 Bt-947 Bt-1093	 	tipple tipple shop
	R & F Coal Co. 538 North Main St. P.O. Box 247 Cadiz, OH 43907 614-942-2186 Jack Cox, pres.	Lamira Preparation Plant Bellaire River Terminal Rebuild Center	Smith City of Bellaire	Bt-108 Bt-832 Bt-1110	 	prep plant—heavy-media washers, cyclone, centrifuges, thickeners, filters, crushers, breakers, screens dock shop
	Saginaw Mining Co. 1100 Superior Ave. P.O. Box 6508 Cleveland, OH 44114 216-861-3300 Renold D. Thompson, pres.	Saginaw Mine	Richland	Bt-643	D-0328	prep plant—heavy-media washers, crushers, screens, picking tables, magnets
Columbiana	Buckeye-Industrial Mining Co. P.O. Box 389 Lisbon, OH 44432 216-337-9511 John Grisham, pres.	Kensington Prep Plant	West	Ca-879	D-0228	prep plant—heavy-media washer, cyclone, centrifuges, breaker
	C & E Coal, Inc. R.D. 2 Box 177 Toronto, OH 43964 614-537-1498 Amos L. Rawson, pres.	C & E Coal, Inc.	Madison	Ca-892		prep plant—crushers, screens
Coshocton	Conesville Coal Preparation Co. Box 222 Conesville, OH 43811 614-892-2392 J. E. Katlic, pres.	Conesville Coal Preparation Co.	Franklin	Cn-810		prep plant—jig, cyclones, froth cells, flotation, filter press, screens, dryers
	Cravat Coal Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	Coshocton Tipple	Franklin	Cn-736		tipple

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1987 OHIO DIRECTORY OF REPORTING COAL-WASHING PLANTS AND ASSOCIATED FACILITIES, BY COUNTY—Continued

County	Name, address, telephone number, and president/owner/manager of company	Name of plant	Township	State mine number	Division of Reclamation permit number	Type of facility
Coshocton (con't)	R & F Coal Co. 538 North Main St. P.O. Box 247 Cadiz, OH 43907 614-942-2186 Jack Cox, pres.	Barb Tipple	Franklin	Cn-748		tipple
Gallia	Conrich of Ohio, Inc. P.O. Box 59 Addison, OH 45610 614-446-7040 Lee Congleton, pres.	Conrich of Ohio, Inc.	Addison	Ga-216		loading dock
	Crown City Mining, Inc. 6422 E. Main St. Reynoldsburg, OH 43068 614-866-6505 David L. Jamison, pres.	Crown City Mine	Guyan	Ga-220	D-0092, D-0201, D-0221, D-0279	prep plant—jig, cyclones, crusher, breaker, screens, dryers
	LaMay Industries, Inc. P.O. Box 965 Jackson, OH 45640 614-682-7787 C. Harold Bowman, pres.	LaMay River Dock	Addison	Ga-229	D-0725	dock, tipple
	Mack Energy Co. P.O. Box 148 Union Furnace, OH 43158-0148 614-385-8521 Michael McCort, pres.	Mack Energy Co. River Tipple		Ga-236		dock, tipple
	Zinn Coal Co., Inc. R.D. 1 Box 176 Kanauga, OH 45631 614-446-7265 John J. Zinn, owner	Zinn Coal Co., Inc.		Ga-183		tipple
Harrison	Consolidation Coal Co. Eastern Region Cadiz, OH 43907 614-458-1381 Ben Statler, v. pres.	Georgetown Prep Plant	Cadiz	Hn-212	D-0192	prep plant—jigs, flotation, cyclones, centrifuges, filters, crushers, breaker, screens, dryer, picking tables, magnets
	Cravat Coal Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	22 Shop 250 Shop	Moorefield Short Creek	Hn-230 Hn-231		shop shop
	R & F Coal Co. 538 North Main St. P.O. Box 247 Cadiz, OH 43907 614-942-2186 Jack Cox, pres.	Nitrate Plant Machine Shop/Warehouse	Short Creek Cadiz	Hn-680 Hn-709		nitrate plant shop
Hocking	Nutter Bros. Coal Co., Inc. P.O. Box 190 New Lexington, OH 43766 614-394-2681 James P. Nutter, pres.	#1 Tipple	Washington	Hg-293		tipple
Jackson	Sands Hill Coal Co., Inc. 1203 N. Pennsylvania Ave. Wellston, OH 45692 614-384-5659 Jack Huffman, pres.	Sands Hill Strip #2	Milton	Jkn-1055	D-0347	prep plant—heavy-media cyclone, hydrocyclones, screens, dryer, crusher, picking table, magnets
	Waterloo Coal Co. P.O. Box 177 Oak Hill, OH 45656 614-682-7788 Harold Bowman, pres.	Bowman Strip	Bloomfield, Madison	Jkn-367	D-0286	prep plant—jig, crushers, breaker, screens, dryers, wash tables
Jefferson	C & E Coal, Inc. R.D. 2 Box 177 Toronto, OH 43964 614-537-1498 Amos L. Rawson, pres.	C & E #2	Smithfield	Jfn-798		prep plant—jig, screen, flotation
	Ohio Coal & Construction Corp. P.O. Box 2388 Wintersville, OH 43952 614-264-7704 Richard Delatore, pres.	#40 Dock-Shop-Washer	Warren	Jfn-647	D-0492	dock, shop, prep plant—heavy-media washer, cyclones, crushers, breaker, screens, dryers

1987 OHIO DIRECTORY OF REPORTING COAL-WASHING PLANTS AND ASSOCIATED FACILITIES, BY COUNTY—Continued

County	Name, address, telephone number, and president/owner/manager of company	Name of plant	Township	State mine number	Division of Reclamation permit number	Type of facility
Jefferson (con't)	Route Forty-Three Washer P.O. Box 407 Richmond, OH 43944 614-282-5301 Paul Carapellotti, pres.	Route Forty-Three Washer	Springfield	Jfn-1290	D-0211	prep plant—heavy-media washer
	W.B. Coal Co. R.D. 1 Box 40 Bloomingdale, OH 43910 614-282-6503 Wayne Boich, owner	W.B. Tipple	Wayne	Jfn-744		tipple
Lawrence	Collins Mining Co. Rte. 2 Box 48 Ironton, OH 45638 614-532-9414 O. C. Collins, owner	River Dock	Hamilton	Le-415	D-0577	dock
	Harbour Marine, Inc. P.O. Box 3126 Huntington, WV 25702 614-886-8444 T. L. McKinney, v. pres. engineering	Harbour Marine, Inc.		Le-420	D-0662	tipple
	Ironton Coal Co., Inc. 3400 S. Third St. Ironton, OH 45638 614-532-5322 Larry Addington, pres.	Ironton Coal Co., Inc.	Upper	Le-439		loading dock
	Rail-River Terminal Co., Inc. 101 Dayton Lane P.O. Box 101 Ironton, OH 45638 614-533-3318 James D. Kulbeth, pres.	Rail-River Terminal	Perry	Le-413	D-0664	dock
Mahoning	East Fairfield Coal Co. 10900 South Ave. P.O. Box 217 North Lima, OH 44452 216-549-2165 R. E. Mackall, pres.	Tipple Washing Plant	Beaver Beaver	Mg-621 Mg-623	D-0214	tipple prep plant—cyclones, centrifuges, thickener, filter, crushers, screens, magnets
	Thompson Bros. Mining Co. 3379 E. Garfield Rd. New Springfield, OH 44443 216-549-3979 J. E. Thompson, pres.	Thompson Bros. Mining Co.	Springfield	Mg-588		tipple
Meigs	Raven Hocking Coal Corp. P.O. Box 108 Mason, WV 25260 304-773-5531 Velma Zuspan, pres.	Raven Dock	Sutton	Ms-307		dock
	Southern Ohio Coal Co. P.O. Box 490 Athens, OH 45701 614-286-5051 J. E. Katlic, exec. v. pres.	Meigs Mine No. 1	Salem	Ms-293	D-0354	prep plant—heavy-media washers, flotation, cyclones, centrifuges, thickeners, filters, breaker, screens
Monroe	Quarto Mining Co. Subsidiary of Consolidation Coal Co. 1029 Market St. P.O. Box 231 Clarington, OH 43915 614-458-1381 Ben Statler, v. pres.	Powhatan #4	Salem	Me-4	D-0339	prep plant—jigs, cyclones, centrifuges, thickeners, filters, crushers
Muskingum	King Quarries, Inc. 2215 Adamsville Rd. Zanesville, OH 43701 614-453-9961 David King, pres.	King Quarries Tipple	Washington	Mum-229	D-0363	tipple
Noble	Central Ohio Coal Co. P.O. Box 98 Cumberland, OH 43732 614-962-2013 J. E. Katlic, exec. v. pres.	Muskingum Mine	Brookfield	Ne-41	D-0056, D-0127, D-0261, D-0274	prep plant—jigs, flotation, cyclones, thickener, filters, crushers, breakers, screens, magnets
Perry	Peabody Coal Co. 2644 Pike Twp. Rd. 217 NE New Lexington, OH 43764 502-827-0800 Howard W. Williams, pres.	Sunnyhill Preparation Plant #0297	Pike	Py-248	D-0325	prep plant—jigs, cyclones, crushers, breaker, screens, centrifuges

1987 OHIO DIRECTORY OF REPORTING COAL-WASHING PLANTS AND ASSOCIATED FACILITIES, BY COUNTY—Continued

County	Name, address, telephone number, and president/owner/manager of company	Name of plant	Township	State mine number	Division of Reclamation permit number	Type of facility
Scioto	Ky-Oh Transportation Co. P.O. Box 899 South Shore, KY 41175 606-932-3101 C. N. Gilmore, pres.	Ky-Oh Transportation Co.	Porter	So-96		dock
	Standard Materials, Inc. P.O. Box 184 Wheelersburg, OH 45694 216-743-3151 C. W. Kelley, asst. sec.	Wheelersburg Dock	Porter	So-92	D-0607	dock
Tuscarawas	Central Fuel Co. County Rd. 55 P.O. Box 165 New Philadelphia, OH 44663 216-339-5049 Keith B. Kimble, gen. mgr.	Central Fuel Co.	York	Ts-1938	D-0381	prep plant—jig, screen, dryers
	Empire Coal Co. P.O. Box 729 Gnadenhutten, OH 44629 614-254-4395 Bruce Work, pres.	Empire Coal Co.	Clay	Ts-115	D-0190, D-0217, D-0398	prep plant—jig, flotation, cyclones, filters, crushers, screens
	GEX Hardy, Inc. P.O. Box 340 Sugarcreek, OH 44681 216-852-2431 J. J. Blazer, pres.	Barrs Mill Tipple	Sugar Creek	Ts-1601		tipple
	Horizon Coal Corp. 11415 Erie Ave. SW P.O. Box 618 Beach City, OH 44608 216-756-2414 Merle Mullet, pres.	Horizon Coal Wash Plant	Lawrence	Ts-1942	D-0287	prep plant—jigs, cyclones, centrifuges, crushers, screens, picking tables
Vinton	Benedict, Inc. P.O. Box 315 McArthur, OH 45651 614-596-5226 W. E. Engle, pres.	Benedict, Inc.	Swan	Vn-145		prep plant—heavy-media washer, cyclone, crusher, conveyors
	Jaymar Coal Prep, Inc. Rte. 1 Cheshire, OH 45620 614-992-6637 Jay Hall, Jr., owner	Jaymar Prep Plant	Clinton	Vn-178	D-0185	prep plant—washers, cyclones, jig, centrifugal dryer, thickener, Diester table, screens, filter, crusher, magnet
	Sands Hill Coal Co., Inc. 1203 N. Pennsylvania Ave. Wellston, OH 45692 614-384-5659 Jack Huffman, pres.	Sands Hill Strip	Clinton	Vn-641	D-0309	prep plant—heavy-media washers, flotation, cyclones, centrifuge, crushers, screens, dryer, picking tables, magnets
	Southern Ohio Coal Co. P.O. Box 490 Athens, OH 45701 614-286-5051 J. E. Katlic, exec. v. pres.	Raccoon Mine #3	Wilkesville	Vn-652	D-0463	prep plant—heavy-media washer, jig, flotation, cyclones, centrifuges, thickeners, filters, crusher, breaker, screens, magnet

1987 OHIO DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS, BY COUNTY

NOTE: This directory lists only the coal-producing operations. It does not list tipples, loading docks, preparation plants, or other active, nonproducing operations that would contribute to employment and wage statistics presented on p. 20-22. Information shown is as reported by operators.

SEAM IDENTIFICATION

1	Sharon	4A	Clarion	7	Upper Freeport	11	Waynesburg
3	Lower Mercer	5	Lower Kittanning	7A	Mahoning	12	Washington
3A	Upper Mercer	5A	Strasburg	8	Pittsburgh	H	Harlem
3B	Tionesta	6	Middle Kittanning	8A	Pomeroy-Redstone	Wl	Wilgus
4	Brookville	6A	Lower Freeport	9	Meigs Creek	W	Winters

Name of operator	Name of mine	Township	Seam	Thickness (inches)	Type of mine	Method of production	Tonnage produced in 1987	Days in operation in 1987	Disposition		Employment			State mine number
									Method	Tonnage	Production		Non-production	
											Underground	Surface		
ATHENS COUNTY — Total production = 150,700 tons														
Avis Coal Co.	Avis Coal Co.	York	6	60	surface	strip	122,998	154	truck	122,998		10	1	As-A[1]
B & C Coal, Inc.	Ginsburg Mine	Alexander	8	40	surface	strip	9,588	180	truck	9,588		2	2	As-591
Nutter Bros. Coal Co., Inc.	Nutter Bros. Coal Co., Inc.	Trimble	7	40	surface	strip	18,114	259	truck	18,114		3		As-NB[1]
BELMONT COUNTY — Total production = 5,898,452 tons														
Bannock Coal Co.	Shippy	Wheeling	9	40	surface	strip	387,764	200	rail	206,060		67		Bt-1147
									truck	181,704				
									Total	387,764				
Consolidation Coal Co.	Franklin 125	Flushing	8	62	shaft	longwall	1,105	61	truck	32,150	10		6	Hn-203[2]
						cont. miner	31,045							
						Total	32,150							
	Mahoning Valley	Wheeling	9	42	surface	strip	825,480	223	water	38,296		53	15	Hn-700
						auger	18,439		truck	805,623				
						Total	843,919		Total	843,919				
Cravat Coal Co.	Ward	Goshen, Warren	8		surface	strip	7,418	26	truck	7,418		1	2	Bt-1118
	Hendrysburg West	Kirkwood	8		surface	strip	39,597	111	truck	39,597		5	3	Bt-1131
	Neffs Pit	Pultney	11		surface	strip	16,860	58	truck	16,860		4	[3]	Bt-1160
	Barnesville Pit	Warren	8,9		surface	strip	74,109	213	water	39,517		22	[3]	Bt-1143
						auger	56,308		truck	90,900				
						Total	130,417		Total	130,417				
	Kriechbaum	York	8,8A,9		surface	strip	49,558		truck	49,558				Bt-78
Fairpoint Coal Co.	Mel-Worth	Richland	9	42	surface	strip	7,522	13	truck	9,462		3	4	Bt-927[4]
	Shepardstown	Wheeling	11	34	surface	strip	3,747		truck	3,747				Hn-205[2]
GEX Hardy, Inc.	Flushing	Flushing, Union	9	32	surface	strip	188,021	180	rail	83,259		35	16	Bt-1099
									truck	140,814				
									Total	224,073				
Joyce Coal Co., Inc.	Crescent	Colerain	8,9		surface	strip	32,823	53	truck	32,823		4		Bt-980
	Blaine	Colerain	8		surface	strip	34,747	21	truck	34,747		1		Bt-1156
K.C.C.I.	Coleman Pit	Wheeling	9	40	surface	strip	6,794	11	truck	6,794		1	[3]	Bt-1130
Loase Coal Co.	Holloway Strip	Kirkwood	8	48	surface	strip	2,007		[5]					Bt-1144
Marietta Coal Co.	Seabright-Bigley-Taylor	Colerain	11	30	surface	strip	11,414	20	truck	11,414		24	20	Bt-1105[6]
			12	25										

[1]No mine number has been assigned by the Division of Mines.
[2]See also Harrison County.
[3]Averages fewer than one employee per month.
[4]Employment reported for Bt-927 is a summary of employment for all Fairpoint Coal Co. operations.
[5]All tonnage produced was stored.
[6]Employment reported for Bt-1105 is a summary of employment for all Marietta Coal Co. operations.

1987 OHIO DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS, BY COUNTY—Continued

Name of company	Name of mine	Township	Seam	Thickness (inches)	Type of mine	Method of production	Tonnage produced in 1987	Days in operation in 1987	Disposition		Employment			State mine number
									Method	Tonnage	Production: Underground	Production: Surface	Non-production	
BELMONT COUNTY (continued)														
Marietta Coal Co. (con't)	Sikole-Ludwig-Mayhugh	Colerain	11	50	surface	strip	2,655	8	truck	3,412				Bt-1133
						auger	757							
						Total	3,412							
	Baltimore Coal-Presutti	Pease, Pultney	11	30	surface	strip	9,120	30	truck	14,024				Bt-1150
						auger	4,904							
						Total	14,024							
	Barack-Henthorne et al.	Richland	11	36	surface	strip	45,875	99	truck	56,218				Bt-1104
						auger	10,343							
						Total	56,218							
	Oliver-Clark-Underwood-Matusik	Richland	11	33	surface	strip	47,350	87	truck	61,831				Bt-1129
						auger	14,481							
						Total	61,831							
	Lude	Richland	9	38	surface	strip	52,352	119	truck	81,735				Bt-1132
						auger	29,383							
						Total	81,735							
	Roscoe-Pickering	Richland	11	36	surface	strip	23,914	85	truck	43,120				Bt-1145
						auger	19,206							
						Total	43,120							
	Kurth-Graham	Richland	11	42	surface	strip	52,730	75	truck	68,550				Bt-1152
						auger	15,820							
						Total	68,550							
	Borovich-Neitzelt-Suter-Seaway	Smith	11	40	surface	strip	78,070	110	truck	100,981				Bt-147
						auger	22,911							
						Total	100,981							
	Consol	Union	8	51	surface	strip	64,842	108	truck	84,679				Bt-1109
						auger	19,837							
						Total	84,679							
Nacco Mining Co.	Powhatan #6	Washington	8	62	slope	cont. miner	905,701	186	rail	780,411	199		98	Bt-68
									other	16				
									Total	780,427				
Ohio Coal & Construction Corp.	No. 38 Strip	Pease	11	36	surface	strip	6,744	133	truck	6,744		1	2	Bt-91
	Ayers Stone Plant	Pease	12	40	surface	strip	4,385	63	truck	3,395		1	[7]	Bt-905
	No. 38 Strip	Pease	12	40	surface	strip	29,998	65	truck	29,998		3	3	Bt-1101
	Ayers Stone Quarry	Pease	12	40	surface	strip	4,682	42	truck	4,682		1	[7]	Bt-1126
	No. 39 Strip	Pease	12	40	surface	strip	31,797	139	truck	29,273		4	2	Bt-1141
	No. 38 Strip	Pease	12	40	surface	strip	56,207	188	truck	56,207		3	1	Bt-1155
	No. 31 Strip	Richland	11	18	surface	strip	1,101	19	truck	1,101		1	1	Bt-1111
	No. 38 Strip	Richland	11		surface	strip	30,750	124	truck	30,750		6	2	Bt-1125
	No. 31 Strip	Richland	9	48	surface	strip	39,245	220	truck	32,996		6	2	Bt-1149
			12	40										
Ohio River Collieries, Inc.	Negus Strip	Colerain	12	48	surface	strip	6,841	53	truck	6,841		3	1	Bt-992
	Miller Pit	Union	7		surface	strip	27,289	68	truck	29,101		5	1	Bt-137
			9	36		auger	1,812							
						Total	29,101							
	7400 Pit	Union	9	42	surface	strip	27,912	103	water	12,597		5	2	Bt-1074
									truck	21,464				
									Total	34,061				

	Saffell	Richland, Union	9 11	 32	surface	strip	13,262	28	truck	13,262		1	1	Bt-1102
	Black Oak	Union, Wheeling	9	30	surface	strip auger	116,157 23,813	156	truck conveyor	120,902 19,068		11	1	Bt-948
						Total	139,970		Total	139,970				
R & F Coal Co.	Yudasz-Mahan	Colerain	11	40	surface	strip	123,812	105	rail water	4,278 117,617		11	5	Bt-1158
									Total	121,895				
	Hollingsworth	Goshen	11		surface	strip	474	21	rail water	9 482		[7]		Bt-153
									Total	491				
	Collins	Goshen	11	28	surface	strip auger	127,451 4,261	258	rail water	3,645 126,331		15	4	Bt-1097
						Total	131,712		Total	129,976				
	Shephard	Goshen, Smith	11		surface	strip	4,652	41	water	4,440		1	[7]	Bt-1103
	Wharton-Cross	Goshen	11	26	surface	strip auger	69,353 11,454	210	rail water	23,968 53,431		8	3	Bt-1137
						Total	80,807		Total	80,399				
	Yoe-Kemp	Goshen	11	28	surface	strip auger	137,473 7,680	252	rail water truck	4,778 95,827 42,820		15	6	Bt-1148
						Total	145,153		Total	143,425				
	Phillips	Kirkwood, Warren	9	20	surface	strip auger	38,083 9,030	169	rail water	2,005 44,872		5		Bt-984
						Total	47,113		Total	46,877				
	Loy-McFarland	Richland	11	36	surface	strip	78,228	211	rail water	2,604 75,535		8	1	Bt-1095
									Total	78,139				
	Ferguson-Fowkes	Richland, Smith	11 12	40 30	surface	strip auger	135,572 8,105	189	rail water	3,869 138,783		16	5	Bt-1146
						Total	143,677		Total	142,652				
	Cheslock	Richland	11 12	40 36	surface	strip auger	209,712 3,219	252	rail water	5,414 205,866		24	8	Bt-1151
						Total	212,931		Total	211,280				
	Michener-Rinkes	Richland	11	30	surface	strip	44,353	84	rail water	1,446 42,203		4	2	Bt-1159
									Total	43,649				
	Burson	Warren	9 11	45 30	surface	strip auger	39,818 4,647	148	rail water	1,929 41,640		14	2	Bt-1117
						Total	44,465		Total	43,569				
	Egypt Valley East	Warren	9	42	surface	strip	416,532	252	rail water	10,415 401,713		44	15	Bt-1154
									Total	412,128				
	Watson-Huhn	Warren	8	38	surface	strip auger	36,561 12,942	84	rail water	2,185 46,614		5	2	Bt-W[8]
						Total	49,503		Total	48,799				
	MacMillan-Shephard	Wheeling	11	24	surface	strip	218,082	252	rail water	5,858 209,178		24	8	Bt-1139
									Total	215,036				
Saginaw Mining Co.	Saginaw Mine	Richland	8	60	slope	cont. miner	519,954	246	rail truck	517,329 62	131		46	Bt-643
									Total	517,391				

[7]Averages fewer than one employee per month.
[8]No mine number has been assigned by the Division of Mines.

1987 OHIO DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS, BY COUNTY—Continued

Name of company	Name of mine	Township	Seam	Thickness (inches)	Type of mine	Method of production	Tonnage produced in 1987	Days in operation in 1987	Disposition		Employment			State mine number
									Method	Tonnage	Production		Non-production	
											Underground	Surface		
CARROLL COUNTY — Total production = 298,370 tons														
Blum Coal Co.	Pickens Job	Washington	6A	34	surface	strip	980	7	truck	980		[9]	3	Cl-231
Buckeye-Industrial Mining Co.	Gamber	Brown	5,6	34	surface	strip	22,894	127	truck	22,894		1		Cl-235
	Myers	Rose	5	55	surface	strip	54,713	101	truck	54,713		3		Cl-238
			6	34										
Cardinal Mining, Inc.	O'Berlin Strip	Union	7A	15	surface	strip	8,031	76	truck	8,031		1		Cl-234
James Bros. Coal Co.	James Bros. Coal Co.	Rose	6	42	surface	strip	46,059		truck	47,019		26	5	Cl-17[10]
			6A	24		auger	960							
						Total	47,019							
	James Bros. Coal Co.	Rose	5	42	surface	strip	51,567	250	truck	56,230				Cl-162
			6	22		auger	4,623							
			7			Total	56,190							
			7,7A		surface	auger	7,065		truck	7,065				Cl-236
Johnson Mining Co.	Johnson Mining Co.	East	H	20	surface	strip	33,721	255	truck	33,721		6		Cl-230
Mac Mining Co.	CAM #4	Lee	6	30	surface	strip	6,820	91	truck	6,820		1		Cl-22
Midway Coal, Inc.	Midway Coal, Inc.	Brown	6A	30										
Carl Noble & Son, Inc.	Noble Strip	Lee	H	22	surface	strip	997	34	truck	597		1		Cl-237
Puskarich Limestone Co.	Harlem Springs	Lee	H,8,9		surface	strip	4,774	66	truck	4,774		3	[9]	Cl-183
Regal Mining, Inc.	Blum-Noble	Lee	H	19	surface	strip	8,626	46	truck	8,626		3		Cl-216
	Camp Ecco	Perry	H	20	surface	strip	46,540	188	truck	46,540		8	1	Cl-233
COLUMBIANA COUNTY — Total production = 765,309 tons														
			6	42	surface	strip	3,068		truck	846				Ca-855
Beaver Creek Resources, Inc.	Beaver Creek Resources, Inc.	Salem	7	24	surface	strip	33,337	244	truck	33,337		3		Ca-938
Blum Coal Co.	DeAngelo Pit	Franklin	5,6	34	surface	strip	10,220	102	truck	10,220		1		Ca 960
Buckeye-Industrial Mining Co.	Vincent	Salem	7	36	surface	strip	9,365	50	truck	9,365		1		Ca-I[11]
	Cope	Salem	7A	36										
			6A	42	drift	cont. miner	4,655		truck	4,655			2	Ca-909
	Trares	Wayne	6	36	surface	strip	89,090	204	truck	98,037		9	1	Ca-932
	Brown	Wayne				auger	8,947							
						Total	98,037							
	Ohio WV/Sheridan Mine	Wayne	6A	40	drift	cont. miner	21,250	45	truck	21,250	12		1	Ca-963
	Springer	Wayne	6A	36	surface	strip	22,904	76	truck	22,974		1		Ca-S[11]
						auger	71							
						Total	22,975							
Cardinal Mining, Inc.	Brown Strip	Elkrun, Lisbon	6A	26	surface	strip	11,044	76	truck	11,044		1	1	Ca-C[11]
Center Mining Co.	Ullom	Center	7A	42	surface	strip	1,312	13	truck	1,312		1		Ca-904
	C. Ullom	Center	6A	16	surface	strip	1,919	45	truck	1,919		1		Ca-961
Churchill Enterprises, Inc.	Churchill Enterprises, Inc.	Center, Elkrun	7		surface	strip	40,937	192	truck	40,937		6	3	Ca-946
Coalbrook Mining, Inc.	Toth Strip	Hanover	7	22	surface	strip	6,983	49	truck	6,983		1	3	Ca-854
	Carle	West	6	32	surface	strip	2,342	24	truck	2,342		[9]	2	Ca-962
Commercial Minerals, Inc.	Baker	Elkrun	6	24	surface	strip	24,142	66	truck	24,142		3		Ca-930
			7	24										
	Dungannon	Hanover	6	24	surface	strip	3,673	11	truck	3,673		1		Ca-829
			7	24										
	Hahn	Knox	6	24	surface	strip	12,094	27	truck	12,094		1		Ca-957
	West Point	Madison	6	40	surface	strip	74,795	190	truck	83,357		7	1	Ca-919
			7	24		auger	8,562							
						Total	83,357							
														Ca-827
Crawford Coal Co.	Crawford Coal Co.	Elkrun	6	28	surface	strip	5,396	239	truck	5,396		4		Ca-891
D. & D. Mining Co.	Lyons Pit	Middleton	7	30	surface	strip	18,619	242	truck	18,619		3	1	Ca-872
	Jack Foster	Unity	4	30	surface	strip	22,097	137	truck	22,097		5	5	Ca-888
	Dickson	Unity	4		surface	strip	1,832	23	truck	1,832		1	3	Ca-D[11]
	Saviers Mine	Unity	6		surface	strip	9,484	38	truck	9,484		2	1	Ca-958
Daron Coal Co., Inc.	Waugh	West	6	42	surface	strip	13,908	20	truck	13,908		1		

East Fairfield Coal Co.	Franklin Square	Salem	7	26	surface	strip	56,678	72	truck	56,678	9	1	Ca-344
	"J" Mine	Unity	7	22	surface	strip	35,260	102	truck	35,260	6	[9]	Ca-953
Jeffco Sales & Mining Co.	Y & O Rd. Mine	Madison	7,7A	36	surface	strip	3,186	10	truck	3,186	2		Ca-949
Johnson Mining Co.	Johnson Mining Co.	Madison	5,6		surface	strip	3,943		truck	2,493			Ca-922
K D Coal Co., Inc.	Baker Mine	Fairfield	7	19	surface	strip	15,859	256	truck	15,859	5	2	Ca-343
	Benner Mine	Middleton	6	34	surface	strip	42,310	309	truck	42,310	6	1	Ca-945
Lisbon Coal Crushers, Inc.	Sell-Mattevi	Center	6	36	surface	strip	117,329	141	truck	117,329	20	2	Ca-939
			7	20									
M & S Coal Co., Inc.	Gaydos	Elkrun	6	28	surface	strip	13,026	66	truck	13,026	3	1	Ca-MS[11]
	Todd	Madison	6		surface	strip	2,429		truck	2,429			Ca-863
Mansfield Hawk Mining, Inc.	Birchfield Strip #4	Franklin	6	22	surface	strip	12,932	57	truck	12,932	5		Ca-931
Robinson & Sons Mining	Robinson Mine	Center	7		surface	strip	311	2	truck	311	[9]		Ca-918
COSHOCTON COUNTY — Total production = 1,539,958 tons													
G & M Mineral Co.	G & M Mineral Co.	Bethlehem	5	36	surface	strip	31,439	66	truck	31,439	7		Cn-757
	G & M Mineral Co.	Mill Creek	6	25	surface	strip	7,065		truck	7,065			Cn-823
Oxford Minerals, Inc.	Milliken Mine	Oxford	6	30	surface	strip	5,952	54	truck	5,952	1	1	Cn-817
Peabody Coal Co.	Simco Mine	Franklin	5	23	surface	strip	278,392	89	conveyor	320,044	63	18	Cn-799[12]
			6	40									
R & F Coal Co.	Adams-Hamilton	Keene	5	30	surface	strip	241,095	252	rail	108	20	7	Cn-812
			6	30					water	4,197			
									truck	235,405			
									Total	239,710			
	Taylor	Lafayette	5	30	surface	strip	26,145	105	truck	25,991	3	1	Cn-820
			6	30									
	Roahrig	Linton	5	11	surface	strip	32,123	128	truck	42,540	6	1	Cn-803[13]
			6	26		auger	10,792						
						Total	42,915						
	Frye	Linton	5	30	surface	strip	8,969	41	truck	9,037	1	[9]	Cn-807
			6	30									
	Ross-Isleta	Linton, Oxford	5	30	surface	strip	111,522	249	truck	121,049	11	3	Cn-811[13]
			6	30		auger	12,356		conveyor	2,616			
						Total	123,878		Total	123,665			
	Courtwright	Oxford	5	30	surface	strip	70,628	252	truck	73,889	8	2	Cn-768
			6	30		auger	3,712						
						Total	74,340						
	Bartolec	Oxford	5	30	surface	strip	124,722	252	truck	123,711	14	2	Cn-779
			6	30									
	Wentz-Green	Oxford	5	27	surface	strip	149,920	252	rail	1	12	5	Cn-814
			6	30					water	20			
									truck	149,049			
									Total	149,070			
	Hathaway-Isleta	Oxford	5	11	surface	strip	9,076	50	truck	9,106	1	[9]	Cn-HI[11]
			6	20									
R & R Minerals, Inc.	Orange Pit	Adams	5	27	surface	strip	1,650	69	truck	1,650	1		Cn-822
			6	24									
Simco-Peabody Co.	Simco-Peabody	Franklin	5	27	surface	strip	414,400	109	conveyor	414,400	90	25	Cn-799[14]
			6	40									
GALLIA COUNTY — Total production = 140,619 tons													
Crown City Mining, Inc.	Crown City Mine	Guyan	8A		surface	strip	85,782	70	truck	102,376	22	12	Ga-220[15]
Green & Burritt Coal Co., Inc.	Green Strip #1	Huntington	6	54	surface	strip	22,045	127	truck	22,045	3	4	Ga-242
Kymcoal, Inc.	Kymcoal #2	Huntington	6,6A		drift	cont. miner	32,792	65	water	28,653	6	1	Ga-247
									truck	4,139			
									Total	32,792			

[9]Averages fewer than one employee per month.
[10]Employment reported for Cl-17 is a summary of employment for all James Bros. Coal Co. operations.
[11]No mine number has been assigned by the Division of Mines.
[12]Peabody Coal Co. operated this mine from August through December 1987. See also Simco-Peabody Co.
[13]See also Guernsey County.
[14]Simco-Peabody Co. operated this mine from January through July 1987. See also Peabody Coal Co.
[15]See also Lawrence County

1987 OHIO DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS, BY COUNTY—Continued

Name of company	Name of mine	Township	Seam	Thickness (inches)	Type of mine	Method of production	Tonnage produced in 1987	Days in operation in 1987	Disposition		Employment			State mine number
									Method	Tonnage	Production		Non-production	
											Underground	Surface		
GUERNSEY COUNTY — Total production = 217,206 tons														
L. & M. Coal Co.	L. & M. Coal Co.	Jackson	7	18	surface	strip	1,618	69	truck	1,618		[16]	[16]	Gy-303
R & F Coal Co.	Watson-Huhn	Millwood	8	38	surface	strip	40,059	64	rail	2,105		5	2	Bt-W[17]
						auger	13,202		water	50,363				
						Total	53,261		Total	52,468				
	Roahrig	Wheeling	6	26	surface	strip	13,339	50	truck	19,181		3	[16]	Cn-803[18]
						auger	5,643							
						Total	18,982							
	Ross-Isleta	Wheeling	6	30	surface	strip	2,816	3	truck	2,694		[16]	[16]	Cn-811[18]
						auger	127		conveyor	259				
						Total	2,943		Total	2,953				
	Hart	Wheeling	5	25	surface	strip	62,331	103	rail	227		8	3	Gy-300[19]
			6	27		auger	11,068		water	13,319				
			7	30		Total	73,399		truck	60,024				
									Total	73,570				
R. T. G., Inc.	R. T. G. #5	Valley	7	48	surface	strip	67,003	79	truck	67,003		9	2	Gy-305
HARRISON COUNTY — Total production = 2,803,707 tons														
Consolidation Coal Co.	Franklin 125	Athens	8	60	shaft	longwall	16,239	79	truck	61,062	13		10	Hn-203[20]
						cont. miner	44,823							
						Total	61,062							
	Oak Park	Cadiz	6A	58	shaft	longwall	796,911	258	conveyor	940,305	104		34	Hn-658
						cont. miner	143,394							
						Total	940,305							
Cravat Coal Co.	Puskarich Farm Pit	Green	11		surface	strip	12,050		truck	12,050		2		Hn-232
Fairpoint Coal Co.	Shepardstown	Short Creek	11	34	surface	strip	3,747		truck	3,747				Hn-205[20]
Huberta Coal Co.	Rose Valley-587	Green	8	42	surface	strip	56,576	223	truck	56,576		6		Hn-222
R & F Coal Co.	Croskey	Green	8	54	surface	strip	25,539	147	rail	341		3	1	Hn-216
			8A	18		auger	508		water	13,547				
						Total	26,047		truck	11,981				
									Total	25,869				
	Lamborn	Green	8	55	surface	strip	102,013	65	rail	3,475		4	1	Hn-218
			8A	15					water	98,412				
									Total	101,887				
	Tasa	Green, Short Creek	8,8A		surface	strip	77,024	231	rail	2,430		8	3	Hn-225
									water	73,017				
									truck	1,519				
									Total	76,966				
	Anderson-Phillips	Short Creek	11	40	surface	strip	226,629	252	rail	7,028		24	8	Hn-221
									water	217,995				
									Total	225,023				
	Reppart	Short Creek	8	40	surface	strip	216,580	189	rail	2,808		21	7	Hn-223
									water	104,136				
									truck	107,970				
									Total	214,914				
	Rinkes	Short Creek	9	30	surface	strip	23,114	231	rail	717		4	1	Hn-224
						auger	9,909		water	31,787				
						Total	33,023		Total	32,504				

	Duncanwood	Short Creek	8,8A		surface	strip	31,122	63	rail	556	3	1	Hn-227
									water	21,646			
									truck	11,727			
									Total	33,929			
	Mihelios-Pruneski	Short Creek	8	60	surface	strip	134,266	254	rail	3,541	15	5	Hn-739
			9	34		auger	11,042		water	131,112			
						Total	145,308		truck	9,530			
									Total	144,183			
	Penova-Myers	Short Creek	8	52	surface	strip	2,872	41	water	2,741	[16]		Hn-746
	Matusek-Heil	Short Creek	8	60	surface	strip	318,204	227	rail	5,110	31	10	Hn-M[17, 21]
			8A	17					water	156,808			
			9	30					truck	154,535			
									Total	316,453			
T. P. Mining, Inc.	Monroe Strip	Franklin	7	42	surface	strip	23,796	163	truck	23,796	4	2	Hn-226
	Monroe Strip	Monroe	7	42	surface	strip	11,583	60	truck	11,583	3	1	Hn-210
Varkony Mining Co.	Varkony Mining Co.	Green	8,8A		surface	strip	37,507	23	truck	37,507	3	1	Hn-217
W.B. Coal Co.	McGinness Bros. Strip	German	H	20	surface	strip	77,712	148	truck	77,712	13	3	Hn-694
	McGinness Bros. Strip	German	H	20	surface	strip	60,448	99	truck	57,397	7	1	Hn-738
Y & O Coal Co.	Nelms #2	Green	6A	56	shaft	cont. miner	340,099	132	rail	123,885	82	36	Hn-169
									truck	200,510			
									Total	324,403			
HOCKING COUNTY — Total production = 72,198 tons													
David Boyle, Inc.	No. 1 Strip	Ward	6A	30	surface	strip	8,655	44	truck	8,655	2	[16]	Hg-321
Valley Coal Corp.	Bumgardner Pit	Starr	6,6A		surface	strip	3,923		water	2,815			Hg-284
									truck	1,108			
									Total	3,923			
	Darmac	Starr	6,6A		surface	strip	39,960		water	33,063			Hg-295
									truck	6,897			
									Total	39,960			
	Tansky Pit	Starr	6A		surface	strip	19,660		water	14,783			Hg-V[17]
									truck	4,877			
									Total	19,660			
HOLMES COUNTY — Total production = 464,585 tons													
Holmes Limestone Co.	Charm Group	Clark, Walnut Creek	5	30	surface	strip	344,152	290	truck	344,152	22	3	Hs-86
			6	30									
	241 Plant	Hardy	3	18	surface	strip	20,487		truck	20,487			Hs-67
			4	24									
	Wayne Mines	Prairie	4	24	surface	strip	34,041	211	truck	34,041	11	1	Hs-79[22]
	Rodco	Richland	3A	30	surface	strip	11,737	74	truck	11,737	1		Hs-87
Miller Mining, Inc.	Trail Pit	Walnut Creek	5		surface	strip	5,673	63	truck	5,673	[16]	[16]	Hs-94
	Raber #5	Walnut Creek	5		surface	strip	48,495	256	truck	48,495	4	1	Hs-91
JACKSON COUNTY — Total production = 1,670,508 tons													
B. & D. Coal, Inc.	B. & D. Coal #2	Milton	3	24	surface	strip	30,380	150	truck	30,380	3		Jkn-570
			4	30									
Elk Coal, Inc.	Bowling Strip	Milton	4,5		surface	strip	63,920	265	truck	63,920	10	2	Jkn-576
LaMay Industries, Inc.	Gilmore Pit	Bloomfield	4	36	surface	strip	215,122	148	truck	215,122	13	1	Jkn-1054
			5	32									
Milton Mining Co., Inc.	Greasy #1	Milton	4A	54	drift	cont. miner	172,414	246	truck	172,414	12	5	Jkn-548
Oak Grove Coal Co.	Oak Grove Coal Co.	Milton	4	40	surface	strip	1,589		truck	1,590			Jkn-1063
Quality Coal Co.	Broken Arrow	Milton	4	24	surface	strip	32,027	38	truck	32,027	2		Jkn-584
			5	24									
	Buckeye Furnace	Milton	5	24	surface	strip	363,634	191	truck	363,634	22		Jkn-1061
			6	24									
			7	24									

[16]Averages fewer than one employee per month.
[17]No mine number has been assigned by the Division of Mines.
[18]See also Coshocton County.
[19]See also Tuscarawas County.
[20]See also Belmont County.
[21]See also Jefferson County.
[22]See also Wayne County.

1987 OHIO DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS, BY COUNTY—Continued

Name of company	Name of mine	Township	Seam	Thickness (inches)	Type of mine	Method of production	Tonnage produced in 1987	Days in operation in 1987	Disposition		Employment			State mine number
									Method	Tonnage	Production: Underground	Production: Surface	Non-production	
JACKSON COUNTY (continued)														
Royal Oak Industries, Inc.	Liberty Mine	Lick	1	24	surface	strip	132,777	105	truck	132,777		9	5	Jkn-1059
Sands Hill Coal Co., Inc.	Sands Hill Strip #2	Milton	4A	36	surface	strip	238,469	190	water	58,383		12		Jkn-1055
			5	38					truck	180,086				
			6	22					Total	238,469				
			6A	6										
			W	30										
Stewart Coal Co.	Stewart Mine	Jackson	1	24	surface	strip	69,113	269	truck	69,113		10		Jkn-578
Waterloo Coal Co.	Bowman Strip	Bloomfield, Madison	4A	48	surface	strip	351,063	219	truck	351,063		26	31	Jkn-367
			5	34										
			6	12										
JEFFERSON COUNTY — Total production = 2,054,127 tons														
Anthony Mining Co., Inc.	Pipo #51	Knox, Saline	8	48	surface	strip	19,464	30	truck	19,464		31	4	Jfn-788[23]
	Maine 307	Wayne	8	46	surface	strip	180,716	239	truck	186,192				Jfn-789
						auger	5,476							
						Total	186,192							
Boich Mining Co.	Boich Mining Co.	Cross Creek	8	56	surface	strip	352,843	239	truck	352,843		39	16	Jfn 528
D & L Contractors, Inc.	D & L Strip	Smithfield	8	56	surface	strip	78,819	243	truck	78,819		18	3	Jfn 780
			8A	18										
F. & M. Coal Co.	F. & M. Strip	Wayne	8	54	surface	strip	28,449		truck	28,449		3		Jfn-784
			8A	14										
Jeffco Sales & Mining Co.	Sun Valley #1	Ross	7	60	surface	strip	9,157	29	truck	10,389		2	[24]	Ca-806
						auger	1,232							
						Total	10,389							
Mackra Minerals	Murray-Anthony	Knox	8	52	surface	strip	8,852		truck	8,852				Jfn-790
			8A	10										
Ohio Coal & Construction Corp.	No. 36 Greentown	Smithfield	8	48	surface	strip	98,697	212	truck	98,697		7	2	Jfn-807
			8A	24										
	No. 30 Strip	Warren	11	36	surface	strip	28,691	127	truck	28,691		4	1	Jfn-801
	No. 38 Medill	Warren	11	36	surface	strip	3,008	21	truck	3,008		[24]		Jfn-1296
	No. 36 Strip	Wayne	8	48	surface	strip	204,476	254	truck	188,075		22	4	Jfn-804
			8A	24										
Ohio Edison Co.	Ohio Edison Co. Strip Mine	Knox	8	40	surface	strip	167,189	340	truck	167,189		20	6	Jfn-1267
R & F Coal Co.	Cochran-Swad	Mount Pleasant	11	30	surface	strip	47,290	86	rail	2,223		4	2	Jfn-802
									water	44,821				
									Total	47,044				
	Matusek-Heil	Smithfield	8	60	surface	strip	36,453	25	rail	909		4	2	Hn-M[25, 26]
			8A	17					water	18,345				
			9	30					truck	16,893				
									Total	36,147				
	Varkony-Kross-Polen	Wayne	8	50	surface	strip	228,288	252	rail	3,364		22	8	Jfn-720
			8A	15		auger	693		water	115,950				
			9	20		Total	228,981		truck	108,066				
									Total	227,380				
	Flohr-Green	Wayne	8A	48	surface	strip	38,643	84	rail	1,186		3	2	Jfn-FG[25]
									water	28,488				
									truck	8,557				
									Total	38,231				
S. & D. Construction Corp.	Rankin Mine	Knox	8	48	surface	strip	31,213	238	truck	37,077		6	2	Jfn-797
						auger	5,864							
						Total	37,077							
Schiappa Coal Co., Inc.	No. 43 Strip	Island Creek	8	48	surface	strip	35,498	125	truck	41,199		12	4	Jfn-673
						auger	5,701							
						Total	41,199							

	Smith 487	Smithfield	8	40	surface	strip	37,939	98	truck	37,939		9	4	Jfn 795
Valley Mining, Inc.	Goose Run-Perrin Run	Smithfield	8	48	surface	strip	173,768	247	truck	180,166		15	2	Jfn-785
			8A	20		auger	6,398							
						Total	180,166							
Weirton Construction Co.	#19	Wells	8	54	surface	strip	156,860	252	truck	158,960		32	3	Jfn-687
Zimnox Coal Co.	Zimnox #4	Wells	8	50	surface	strip	62,450	97	truck	62,450		11	8	Jfn-703
LAWRENCE COUNTY — Total production = 228,782 tons														
Belville Mining Co., Inc.	Brady Creek Mine #1	Washington	4A	36	surface	strip	148,045	170	water	146,530		24	10	Le-432
			5	30					truck	10,274				
			6	30					other	7,101				
									Total	163,905				
Collins Mining Co.	Campground Job	Mason	Wl	34	surface	strip	59,292	114	truck	59,292		10	2	Le-442
Crown City Mining, Inc.	Crown City Mine	Mason	8A		surface	strip	21,445	18	truck	31,465		10	7	Ga-220[27]
MAHONING COUNTY — Total production = 262,854 tons														
East Fairfield Coal Co.	"K" Mine	Springfield	4	32	surface	strip	6,042	17	truck	22,386		5	3	Mg-603
	"HP" Mine	Springfield	4	28	surface	strip	163,700	220	truck	160,446		18	2	Mg-626
			5	10		auger	2,665							
						Total	166,365							
	"C" Mine	Springfield	6	18	surface	strip	6,802	20	truck	6,802		1		Mg-627
Ted Mesmer & Sons, Inc.	V Pts. Mine	Beaver	5		surface	strip	18,506	312	truck	18,506		4	2	Mg-59
Thompson Bros. Mining Co.	Peres Mine	Beaver	4	30	surface	strip	65,139	312	truck	65,139		9	1	Mg-65
MEIGS COUNTY — Total production = 3,901,859 tons														
Southern Ohio Coal Co.	Meigs Mine #2	Columbia	4A	57	shaft	longwall	2,070,566	242	conveyor	2,910,274	401		138	Ms-294
						cont. miner	838,717							
						Total	2,909,283							
	Meigs Mine #1	Salem	4A	57	shaft	cont. miner	992,576	242	conveyor	994,856	252		352	Ms-293
MONROE COUNTY — Total production = 2,116,550 tons														
Quarto Mining Co. (subsidiary of Consolidation Coal Co.)	Powhatan #4	Salem	8	60	shaft	longwall	1,753,580	181	water	2,116,550	318		147	Me-4
						cont. miner	362,970							
						Total	2,116,550							
MUSKINGUM COUNTY — Total production = 537,025 tons														
Central Ohio Coal Co.	Muskingum Mine	Meigs	9	41	surface	strip	232,741	18	conveyor	238,303		17	40	Ne-41[28]
						auger	5,562							
						Total	238,303							
Cravat Coal Co.	Rix Mills	Rich Hill, Union	8		surface	strip	12,647	92	truck	12,647		4	2	Mum-249
King Quarries, Inc.	King Strip	Wayne	6	32	surface	strip	23,964		rail	3,746		4	4	Mum-237
									truck	24,992				
									Total	28,738				
Muskingum Mining, Inc.	Muskingum Mine	Madison	6	32	surface	strip	183,426	73	conveyor	195,896		31	29	Mum-206
Sands Mining Corp.	Sands #3	Washington	6	48	surface	strip	35,332	168	truck	76,734	2	8	1	Mum-260
						auger	28,962							
					[29]	conventional	8,717							
						cont. miner	3,723							
						Total	76,734							
	Tinnel Coal Co., Inc.	Washington	5		[29]	conventional	1,951	19	truck	1,952	2			Mum 263
NOBLE COUNTY — Total production = 3,492,819 tons														
B & N Coal, Inc.	Pipeline	Marion, Stock	9	28	surface	strip	47,198	109	truck	47,198		4	1	Ne-137

[23]Employment reported for Jfn-788 is a summary of employment for all Anthony Mining Co., Inc. operations.
[24]Averages fewer than one employee per month.
[25]No mine number has been assigned by the Division of Mines.
[26]See also Harrison County.
[27]See also Gallia County.
[28]See also Noble County.
[29]The type of underground mine has not been determined.

1987 OHIO DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS, BY COUNTY—Continued

Name of company	Name of mine	Township	Seam	Thickness (inches)	Type of mine	Method of production	Tonnage produced in 1987	Days in operation in 1987	Disposition		Employment			State mine number
									Method	Tonnage	Production: Underground	Production: Surface	Non-production	
NOBLE COUNTY (continued)														
B & N Coal, Inc. (con't)	Guiler	Marion	9	60	surface	strip	202,491	154	truck	205,068		13	1	Ne-146
						auger	2,577							
						Total	205,068							
Bennoc, Inc.	Quaker	Wayne	9		surface	strip	25,722	27	truck	25,722		1		Ne-136
Central Ohio Coal Co.	Muskingum Mine	Brookfield, Noble, Sharon	9	36	surface	strip	2,974,261	220	conveyor	3,139,688		333	527	Ne-41[30]
						auger	165,461		other	34				
						Total	3,139,722		Total	3,139,722				
R & F Coal Co.	Flood-Cline	Beaver	9	30	surface	strip	73,544	106	rail	1,423		9	2	Ne FC[31]
									water	70,543				
									Total	71,966				
	Gibson	Beaver	9	24	surface	strip	1,134	22	rail	104		[32]	[32]	Ne-G[31]
						auger	431		water	1,446				
						Total	1,565		Total	1,550				
PERRY COUNTY — Total production = 1,809,203 tons														
Crooksville Coal Co., Inc.	Crooksville Strip	Bearfield	5	30	surface	strip	348,267	325	rail	71,677		54	8	Py-317
			6	42					water	39,915				
			7	12					truck	289,816				
									Total	401,408				
Dennis Clay Co.	Browning-Bateson-Ferguson-Hall	Harrison	5	24	surface	strip	7,876	12	truck	7,876				Py-331
			6											
Peabody Coal Co.	Sunnyhill #9 North	Bearfield	6	51	drift	cont. miner	752,219	225	rail	519,387	142		29	Py-271
									truck	247,390				
									Total	766,777				
	Sunnyhill #9 South	Pleasant	6	51	drift	cont. miner	567,228	225	rail	402,109	135		22	Py-265
									truck	183,563				
									Total	585,672				
Sand Ridge Coal Co.	Moore Pit	Madison	6	50	surface	strip	23		truck	23				Py-SR[31]
Shawnee Coal Co.	Shawnee Coal Co.	Salt Lick	7	50	surface	strip	3,285	23	truck	3,285		2		Py-326
Star Mining Co., Inc.	Adcock	Jackson	6	34	surface	strip	80,098	227	truck	80,098		14		Py-335
Transpacific Technology of Ohio, Inc.	Rehoboth Reclamation Project	Clayton	6	34	surface	[33]	24,678	79					9	Py-332
Tri-State Coal Sales, Inc.	Saltillo	Clayton, Harrison	5	40	surface	strip	25,529	244	truck	25,529		10		Py-317T[34]
			6	40										
STARK COUNTY — Total production = 764,166 tons														
Buckeye Industrial Mining Co.	Dobransky	Osnaburg, Sandy	5,6	34	surface	strip	183,026	229	truck	183,026		12		Sk-237
	Roberts	Sandy	5,6	34	surface	strip	110,039	229	truck	110,039		4		Sk-236
East Ohio Limestone Co.	East Ohio Limestone Co.	Lake	4	40	surface	strip	15,713	96	truck	15,713		5	1	Sk-663
ENZ, Inc.	Sickafoose Pit	Sandy	4	42	surface	strip	49,760	271	truck	49,760		9	3	Sk-208
Hillcrest Coal, Ltd.	Hillcrest Coal, Ltd.	Osnaburg	5	20	surface	strip	10,322	152	truck	11,252		3		Sk-221
			6	24		auger	931							
						Total	11,253							
Holmes Limestone Co.	Bolivar Mine	Bethlehem	4	30	surface	strip	19,602	229	truck	19,602		3	1	Sk-235
Horizon Coal Corp.	Horizon Strip-Canton	Pike	4	24	surface	strip	41,408	135	truck	41,408		2	1	Sk-223
			5	30										
			6	24										
	Horizon Strip-East Sparta	Pike	5	30	surface	strip	35,470	112	truck	35,470		2	[32]	Sk-230
			6	24										

K & R Mining, Inc.	Foltz	Osnaburg	5	30	surface	strip	169,835	256	truck	181,389	35	26	Sk-225
			6	30		auger	12,004						
			6A	18		Total	181,839						
	Egan	Paris	5	28	surface	strip	18,708	107	truck	18,708	3		Sk-234
			6	28									
Kohl Industries	Black Hawk	Bethlehem, Pike	4	22	surface	strip	41,983	308	truck	41,983	7	3	Sk-217
			5	22									
			5A	18									
Wilmot Mining Co.	Rte. 43	Canton	6	36	surface	strip	834	26	truck	7,204	1	1	Sk-233
						auger	9,056						
						Total	9,890						
	Muskingham	Pike	4,5		surface	strip	45,475	137	truck	44,660	5	3	Sk-239
TUSCARAWAS COUNTY — Total production = 1,782,774 tons													
Arapaho Mining, Inc.	Arapaho Mining, Inc.	Clay	6	32	surface	strip	35,864	217	truck	35,864	8	2	Ts-1979
Arrow Head Energy, Inc.	Hopkins-Myers	Clay	5	26	surface	strip	19,990	64	truck	26,704	6	4	Ts-1949
			6	36		auger	6,714						
						Total	26,704						
													Ts-1646
Belden Brick Co.	Finzer-Belden	Sugar Creek	3B	30	surface	strip	3,841		truck	3,841			
C K & K, Inc.	C K & K, Inc. #1	Sugar Creek	3A	28	surface	strip	45,437	100	truck	46,745	8	2	Ts-1974
			4	15		auger	1,308						
						Total	46,745						
	C K & K, Inc. #2	York	6	38	surface	strip	4,001	9	truck	4,001	1		Ts-1993
Cravat Coal Co.	Seven Pit	Rush	7		surface	strip	26,909	113	truck	26,909	5	[32]	Ts-1970
Daron Coal Co., Inc.	Harstine	Sugar Creek	3B	26	surface	strip	105,322	280	truck	105,322	9	2	Ts-1924
			4										
	Marino	Sugar Creek	4	22	surface	strip	1,284	15	truck	1,284	1		Ts-1966
	Pleasant Valley-Liggett	Union	7	29	surface	strip	5,188	12	truck	5,188	2	1	Ts-1991
Eberhart Coal, Inc.	Eberhart #2 Hott Strip	Dover	5,5A,6		surface	strip	61,386	260	truck	66,496	8	10	Ts-1526
						auger	4,735						
						Total	66,121						
	Eberhart #2 Hott Strip	Dover	5,5A		surface	strip	8,043	69	truck	7,389	1	3	Ts-1882
	Eberhart #2 Hott Strip	Fairfield	6		surface	strip	36,547	236	truck	36,307	3	3	Ts-1919
	Eberhart #2 Hott Strip	Lawrence	6		surface	strip	7,569	127	truck	9,409	1	2	Ts-1992
	Eberhart #2 Hott Strip	Lawrence	5,6		surface	strip	3,222	44	truck	4,109	[32]	1	Ts-1994
Empire Coal Co.	Empire Coal Co.	Clay	5,6	60	surface	strip	278,888	264	truck	527,874	48	27	Ts-115
						auger	71,553						
						Total	350,441						
	Dichler-Riggle	Salem	6	30	surface	strip	75,192	251	truck	91,563	11	1	Ts-1964
						auger	16,371						
						Total	91,563						
	Anco Strip	Washington	6A	29	surface	strip	63,609	291	truck	76,680	12	3	Ts-1963
						auger	13,071						
						Total	76,680						
Horizon Coal Corp.	Horizon Strip-Belden	Sandy	4	24	surface	strip	53,901	106	truck	53,901	3	1	Ts-1941
			5,5A	30									
			6	24									
	Horizon Strip-Ladrach	Sandy	5,5A	30	surface	strip	1,718	4	truck	1,718	[32]	1	Ts-1962
			6	24									
J D Mining, Inc.	Demuth Pit	Goshen	5	30	surface	strip	21,797	190	truck	33,734	3	2	Ts-1936
			6	44		auger	11,937						
						Total	33,734						
	Baltzley Valley Mine	Goshen	5	30	surface	strip	8,756	61	truck	13,861	1	2	Ts-1969
			6	44		auger	5,105						
						Total	13,861						

[30]See also Muskingum County.
[31]No mine number has been assigned by the Division of Mines.
[32]Averages fewer than one employee per month.
[33]Recovering saleable coal by processing refuse material from previous surface mining activity.
[34]This mine number has been duplicated for another company.

1987 OHIO DIRECTORY OF REPORTING PRODUCING COAL-MINE OPERATORS, BY COUNTY—Continued

Name of company	Name of mine	Township	Seam	Thickness (inches)	Type of mine	Method of production	Tonnage produced in 1987	Days in operation in 1987	Disposition		Employment			State mine number
									Method	Tonnage	Production		Non-production	
											Underground	Surface		
TUSCARAWAS COUNTY (continued)														
Kimble Clay & Limestone Co.	Kimble Clay & Limestone Co.	Dover	3A	20	surface	strip	12,175	91	truck	12,175		3		Ts-K1[35]
	Kimble Clay & Limestone Co.	Dover	6	42	surface	strip	1,783	5	truck	1,783		[36]	[36]	Ts-K2[35]
	Kimble Clay & Limestone Co.	Sugar Creek	3A	28	surface	strip	117,028	294	truck	121,380		6	3	Ts-1727
			4	18		auger	4,352							
			5	28		Total	121,380							
			6	36										
	Kimble Clay & Limestone Co.	York	6	42	surface	strip	46,377	153	truck	46,377		2	1	Ts-1987K[37]
L & M Minerals, Inc.	Evans	Mill, Rush	7	40	surface	strip	18,224		truck	18,284		6		Ts-1884
						auger	60							
						Total	18,284							
	Luikert	Mill, Warwick	5		surface	strip	9,656		truck	12,880				Ts-1914
						auger	3,224							
						Total	12,880							
	Spring	Mill, Warwick	5,6		surface	strip	6,471		truck	6,471		6		Ts-1982
	Romig	Rush	6	40	surface	strip	8,294		truck	8,829		3		Ts-1930
						auger	535							
						Total	8,829							
Liberty Coal Co.	Barnhill	Goshen	6	48	surface	strip	2,157	5	truck	2,157		[36]		Ts-1987L[37]
Red Malcuit, Inc.	RMI #1	York	5	30	surface	strip	48,510	198	truck	51,716		7		Ts-1918
			6	36		auger	3,206							
						Total	51,716							
Miller Mining, Inc.	Houston-Schneiter-Kane	Dover	5,6		surface	strip	25,254	256	truck	25,254		3	[36]	Ts-1973
	Stony Point	Sugar Creek	3A		surface	strip	16,120	162	truck	16,120		2	[36]	Ts-1990
	Hershberger-Beachy-Troyer	Wayne	3A,4		surface	strip	45,421	256	truck	40,379		5	1	Ts-1958
Mudsock Minerals, Inc.	Breyer	Goshen, York	5	32	surface	strip	18,093	107	truck	29,455		2	3	Ts-1988
			6	36		auger	11,362							
						Total	29,455							
Puskarich Mining, Inc.	New Cumberland Pit	Warren	5,6		surface	strip	53,247	136	truck	53,247		9	[36]	Ts-1917
R. & E. Coal Co.	R. & E. Coal Co.	Jefferson	6	29	surface	strip	9,206	65	truck	11,022		4	3	Ts-1925
						auger	1,816							
						Total	11,022							
R & F Coal Co.	Ott-Hagloch	Jefferson	5	28	surface	strip	11,579	21	truck	12,691		[36]	[36]	Ts-1996
						auger	1,058							
						Total	12,637							
	Hart	Oxford	6	27	surface	strip	84,332	149	rail	1,016		9	3	Gy-300[38]
			7	30		auger	14,241		water	30,616				
						Total	98,573		truck	65,656				
									Total	97,288				
	Furbay-Beem	Rush	7	30	surface	strip	54,403	210	rail	1,519		8	3	Ts-1978
						auger	15,130		water	67,796				
						Total	69,533		Total	69,315				
	Tusco-Mills	Salem	5	28	surface	strip	33,361	252	rail	20		5	1	Ts-1971
			6	30		auger	9,085		water	8,753				
						Total	42,446		truck	33,573				
									Total	42,346				
Valley Mining, Inc.	S & C Development	Mill	5	28	surface	strip	46,686	184	truck	56,489		7	1	Ts-1980
			6	42		auger	9,803							
						Total	56,489							

	Putnam	Rush	7		surface	strip	8,947	72	truck	11,195	3	2	Ts-1957
						auger	2,248						
						Total	11,195						
	Fouts-Edwards	Rush	7	24	surface	strip	7,366	87	truck	7,366	2	[36]	Ts-1983
Vic Mining, Inc.	Newport Pit Strip	Mill	5,6		surface	strip	15,112	123	truck	15,112	3	1	Ts-1965
Zoar Mining Co.	Zoar Mining Co.	Sandy	4		surface	strip	1,756	5	truck	1,756	[36]		Ts-538
	Zoar Mining Co.	Sandy	4		surface	strip	5,838	40	truck	5,838	1		Ts-540
VINTON COUNTY — Total production = 1,959,766 tons													
B. & D. Coal, Inc.	B. & D. Coal #1	Clinton	3	24	surface	strip	39,698	143	truck	39,698	3	11	Vn-623
			4	30									
Benedict, Inc.	Benedict, Inc.	Clinton	3A,W		surface	strip	43,463	106	truck	43,463	3	2	Vn-183
	Benedict, Inc.	Elk	W,4A,5		surface	strip	33,424	69	truck	33,424	5	1	Vn-184
	Benedict, Inc.	Elk	W,4A,5		surface	strip	25,580	66	truck	25,580	8	1	Vn-187
	Mitchell Hollow	Swan	4A,5		surface	strip	9,890	66	truck	9,890	1	2	Vn-172
	Zaleski	Swan	4,5		surface	strip	58,942	135	truck	58,942	6	1	Vn-180
R. A. Eberts Co.	McArthur Pit	Elk	4,5		surface	strip	202,710	62	truck	202,710	19	1	Vn-163
Elk Coal, Inc.	Elk Strip	Richland	3,4,5		surface	strip	10,360	21	truck	10,360	1		Vn-185
Green & Son Coal Co.	Green Strip II	Madison	3	15	surface	strip	51,925	174	truck	51,925	4	2	Vn-182
			4	48									
			5	17									
Quality Coal Co.	Church	Clinton	4	24	surface	strip	200,977	118	truck	200,977	11		Vn-181
			5	24									
			6	24									
	Sentry	Clinton	4	24	surface	strip	24,687	28	truck	24,687	2		Vn-655
			5	24									
			6	24									
R & S Coal Co., Inc.	R & S Strip	Clinton	3	30	surface	strip	17,059	98	truck	17,059	3		Vn-173
Sands Hill Coal Co., Inc.	Sands Hill Strip	Clinton	W	40	surface	strip	180,082	252	water	39,627	29	29	Vn-641
			4A	35					truck	140,455			
			5	30					Total	180,082			
			6	20									
			6A	20									
Southern Ohio Coal Co.	Raccoon Mine #3	Wilkesville	4A	57	drift	cont. miner	1,049,242	241	rail	1,051,440	242	166	Vn-652
Stewart Construction Co.	Elk	Elk	4	45	surface	strip	11,727	35	truck	11,727	1	1	Vn-186
			5	12									
WASHINGTON COUNTY — Total production = 206,187 tons													
B & N Coal, Inc.	Shook	Aurelius	9	40	surface	strip	92,511	83	truck	92,511	10	1	Wn-1004
	Lincoln	Aurelius	9	40	surface	strip	112,316	101	truck	113,676	13	1	Wn-1005
						auger	1,360						
						Total	113,676						
WAYNE COUNTY — Total production = 14,592 tons													
Holmes Limestone Co.	Wayne Mines	Franklin	4	24	surface	strip	14,592	92	truck	14,592	4	1	Hs-79[39]

[35]No mine number has been assigned by the Division of Mines.
[36]Averages fewer than one employee per month.
[37]This mine number has been duplicated for another company.
[38]See also Guernsey County.
[39]See also Holmes County.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Agg Rok Materials Div. of Wapak Sand & Gravel Co. 711 Frank Rd. Columbus, Oh 43223 614-443-0466 Ralph E. Heffner, pres.	Agg Rok (94)	Franklin	sand & gravel	332,235	327,283	Fn-36	IM-302
Aggregate Services, Inc. 6025 Dixie Hwy. Suite 200 Fairfield, OH 45014 513-874-8705 James E. Broshear, pres.	Aggregate Services, Inc. (28)	Butler	sand & gravel	11,793	5,610	Br-36	IM-649
Alan Stone Co., Inc. P.O. Box 127 Chesterhill, OH 43728 614-554-6191 Ruth E. Janes, pres.	Alan Stone Co., Inc. (43)	Washington	sandstone	3,053	3,053	Wn-45	IM-125
Alexandria Materials Co. 2699 State Rte. 37 P.O. Box 6 Alexandria, OH 43001 614-366-2302 Frank B. Murphy, pres.	Alexandria Pit (173)	Licking	sand & gravel	4,840	0	Lg-8[1]	IM-271
Allied Corp. 1750 Highland Dr. Twinsburg, OH 44087 216-425-7861 Clayton A. Edwards, pres.	Allied Corp. (316)	Stark	sand & gravel	[2]		Sk-173	IM-156
American Aggregates Corp. P.O. Drawer 160 Greenville, OH 45331 513-548-2111 William E. Hole, Jr., pres.	Hamilton #710 (29)	Butler	sand & gravel	655,392	646,849	Br-5	IM-153
	Fairfield #711 (30)	Butler	sand & gravel	1,269,037	1,256,808	Br-35	IM-200
	Urbana #615 (48)	Champaign	sand & gravel	206,260	222,060	Cpn-1	IM-371
	Springfield #223 (16)	Clark	limestone	123,877	138,341	Ck-1	IM-373
	Fairborn #413 (52)	Clark	sand & gravel	461,128	431,191	Ck 13	IM-366
	Fort Jefferson #424 (19)	Darke	limestone	301,652	317,892	Dke-1	IM-362
	Shawnee #225 (20)	Delaware	limestone	738,818	734,620	Del-4	IM-262
	Blue Rock Limestone #222 (27)	Fayette	limestone	156,612	141,536	Fe-2	IM-169
	Marble Cliff #224 (30)	Franklin	limestone	2,025,389	1,999,389	Fn-2	IM-261
	Columbus #210 (95)	Franklin	sand & gravel	1,775,478	1,621,448	Fn-6	IM-185
	Lockbourne #213 (96)	Franklin	sand & gravel	807,993	794,393	Fn-23	IM-183
	Columbus Limestone #221 (31)	Franklin	limestone	1,756,210	1,756,910	Fn-53	IM-185
	Cedarville Limestone #423 (32)	Greene	limestone	206,481	231,831	Ge-17	IM-435
	Haines Rd. #419 (405)	Greene	sand & gravel	32,873	35,987	Ge-32	IM-400
	Xenia #414 (110)	Greene	sand & gravel	450,213	458,147	Ge 33	IM-379
	Harrison #712 (118)	Hamilton	sand & gravel	319,917	331,397	Hmn-37	IM-170
	Kilby Rd. #713 (119)	Hamilton	sand & gravel	323,017	363,144	Hmn-AAC[3]	IM-716
	Newark #214 (174)	Licking	sand & gravel	438,533	439,083	Lg-2	IM-184
	Phillipsburg Limestone #421 (70)	Montgomery	limestone	358,827	357,935	My-1	IM-374
	Dayton Limestone #420 (71)	Montgomery	limestone	436,866	442,607	My-23	IM-368
	Dayton South #412 (223)	Montgomery	sand & gravel	[4]		My-33	IM-361
	Rip Rap Road #416 (224)	Montgomery	sand & gravel	377,177	386,547	My-66	IM-677
	Circleville #616 (251)	Pickaway	sand & gravel	308,857	301,509	Pky-1	IM-409, IM-428, IM-668
	Lytle Limestone #422 (125)	Warren	limestone	15,384	3,878	Wan-35	IM-112
	Franklin #417 (349)	Warren	sand & gravel	384,568	397,783	Wan-38	IM-615
American Olean Tile Co. Lewisport, KY 42351 502-295-3411 Jack Thompson, pres.	Jefferys (24)	Lawrence	clay	17,168	12,574	Le-440	IM-828
American Sand & Gravel 8188 Wales Rd. NW North Canton, OH 44720 216-494-6455 Christopher Scala, pres.	American Sand & Gravel (387)	Portage	sand & gravel	[2]		Pe-ASG[3]	IM-212
	American Sand & Gravel (386)	Stark	sand & gravel	[2]		Sk-203	IM-654
Amert Gravel Co. 4843 County Hwy. 43 Rte. 4 Upper Sandusky, OH 43351 419-927-2366 John E. Amert, co-owner	Amert Gravel Co. (379)	Wyandot	sand & gravel	[2]		Wt-4	IM-520
Apache Aggregate & Paving Co. 46626 County Rte. 495 Coshocton, OH 43812 614-622-5904 Edward E. Ross, pres.	Apache Aggregate & Paving Co. (69)	Coshocton	sand & gravel	[4]		Cn-718	IM-227
	Apache Aggregate & Paving Co. (70)	Coshocton	sand & gravel	84,543	134,574	Cn-783	IM-717

[1]This mine was operated 1st quarter 1987 by Alexandria Materials Co. and 2nd through 4th quarters by Newark Asphalt Co.
[2]No report filed in 1987.
[3]No mine number has been assigned by the Division of Mines.
[4]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Armco, Inc. 1750 W. Statler Rd. Piqua, OH 45356 513-773-4824 Albert R. Donovan, mgr.	Piqua Minerals (64)	Miami	limestone	327,925	345,835	Mi-1	IM-382
Ashcraft Sand & Gravel 5840 Dry Fork Rd. Cleves, OH 45002 513-367-2177 Otis Ashcraft, pres.	Ashcraft Sand & Gravel (120)	Hamilton	sand & gravel	46,750	29,414	Hmn-54	IM-710
Athens Building Materials Co. 250 N. Columbus Rd. P.O. Box N Athens, OH 45701 614-592-2088 Carl J. Murphy, pres.	Kimberly Pit (18)	Athens	sand & gravel	[5]		As-1117	IM-369
Aurora Sand & Gravel Co. 60 Treat Rd. Aurora, OH 44202 216-641-0300 Gary Helf, pres.	Aurora Sand & Gravel Co. (260)	Portage	sand & gravel	148,855	199,952	Pe-84	IM-868
Ayers Limestone Quarry, Inc. 2000 Colerain Pike P.O. Box 67 Martins Ferry, OH 43935 614-633-2958 Thomas E. Ayers, pres.	Ayers Limestone Quarry, Inc. (12)	Belmont	limestone	93,868	93,868	Bt-716	IM-1
Baker Sand, Inc. 9857 Friendsville Rd. Burbank, OH 44214 216-948-1448 Thom E. Baker, pres.	Baker Sand, Inc. (202) Baker Sand, Inc. (203)	Medina Medina	sand & gravel sand & gravel	15,387 781,539	15,387 781,539	Ma-4 Ma-20	IM-426, IM-442 IM-448
Barrett Paving Materials, Inc. 7374 Main St. Cincinnati, OH 45244 513-271-6200 Scott Emmit, plant admstr.	Newtown Sand & Gravel (59)	Clermont	sand & gravel	108,000	108,000	Ct-9	IM-526
Barrett Paving Materials, Inc. 9570 State Rte. 128 Harrison, OH 45030 513-738-1201 J. E. Webb, mgr.	Barrett Paving Materials, Inc. (121)	Hamilton	sand & gravel	317,207	354,766	Hmn-44	IM-120
Beaver Creek Resources, Inc. 7219 Salem-Unity Rd. Salem, OH 44460 216-337-3534 Delyte DeYarmon, pres.	Beaver Creek Resources, Inc. (64) (3)	Columbiana	sand & gravel sandstone	67,285 28,079	67,285 28,079	Ca-855	IM-109, IM-891
Beck Sand & Gravel, Inc. 2820 Webb Rd. Ravenna, OH 44266 216-626-3863 Robert E. Wenrich, pres.	Beck Sand & Gravel, Inc. (256)	Portage	sand & gravel	248,197	248,197	Pe-50	IM-96
Becky Lane Trucking, Inc. 441 Iowa St. Ashland, KY 41101 606-325-8301 Janet S. Robinson, pres.	Becky Lane Sand (167)	Lawrence	sand & gravel	23,159	8,461	Le-430	IM-844
Paul D. Beery Trucking Co. 4770 Cincinnati-Zanesville Rd. NE Lancaster, OH 43130 614-653-5061 Paul D. Beery, pres.	Paul D. Beery Trucking Co. (401)	Fairfield	sand & gravel	335	375	Fd-14	IM-933
Belden Brick Co. P.O. Box 910 Canton, OH 44701 216-852-2424 William H. Belden, Jr., pres.	Moomaw Pit (56) (56) Finzer-Belden (57) (57) Wallick Pit (58) (58) Shanesville Pit (59) (59) Beagle Pit (60)	Tuscarawas Tuscarawas Tuscarawas Tuscarawas Tuscarawas	clay shale clay shale clay shale clay shale clay	78,029 60,937 33,061 118,694 122,842 26,633 24,276 66,839 14,129	78,029 60,937 33,061 118,694 122,842 26,633 24,276 66,839 14,129	Ts-1517 Ts-1646 Ts-1841 Ts-1939 Ts-1960	IM-46 IM-44 IM-45 IM-47 IM-48

[5]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Bellbrook Gravel Co. 135 E. Main St. P.O. Box 440 Tipp City, OH 45371 513-667-4431 James Ernst, pres.	Bellbrook Gravel Co. (350)	Warren	sand & gravel	146,295	3,600	Wan-24	IM-270
Belu & Son Paving, Inc. 4900 French Creek Rd. Lorain, OH 44054 216-277-7087 John W. Belu, pres.	Belu Sand Pit (191)	Lorain	sand & gravel	7,616	7,616	Ln-12	IM-731
Belville Mining Co., Inc. P.O. Box 309 Wheelersburg, OH 45694 614-594-8464 Thomas J. Belville, pres.	Brady Creek (25) (25) (140)	Lawrence	clay shale limestone	369 [6] 2,057	0 744	Le-403	IM-738, D-0536
Benco Leasing, Inc. State Rte. 416 Rte. 3 New Philadelphia, OH 44663-9507 216-339-3339 Ben Cookson, pres.	Goshen 416 Site (389)	Tuscarawas	sand & gravel	15,122	33,222	Ts-1976	IM-941, IM-942
Best Sand Corp. 11830 Ravenna Rd. P.O. Box 87 Chardon, OH 44024 216-946-3441 Alexander McAfee, pres.	Best Sand Corp. (17)	Geauga	sandstone	457,257	479,631	Gea-3	IM-89
Best Silica Co. 11830 Ravenna Rd. P.O. Box 87 Chardon, OH 44024 216-946-3441 Alexander McAfee, pres.	Best Silica Co. (16)	Geauga	sandstone	85,583	53,497	Gea-36	IM-337
Beverly Slag Co. P.O. Box 599 McConnelsville, OH 43756 614-962-5621 Fred R. Price, pres.	Devola Pit (364)	Washington	sand & gravel	[6]		Wn-55	IM-669
Big Walnut Sand & Gravel Co. 88 W. Mound St. Columbus, OH 43215-5018 614-224-2678 Ralph G. Walls, mgr. partner	Big Walnut Sand & Gravel Co. (97)	Franklin	sand & gravel	[6]		Fn-14	IM-832
Black Top Contracting, Inc. P.O. Box 98 Belpre, OH 45714 614-423-5455 Terry Wyatt, pres.	Black Top #1 (19)	Athens	sand & gravel	24,118	24,118	As-588	IM-630
E. E. Blair Construction Co. P.O. Box 31 Wheelersburg, OH 45694 614-574-6575 Edwin E. Blair, pres.	E. E. Blair Construction Co. (303)	Scioto	sand & gravel	[7]		So-98	IM-474
Bluffton Stone Co. P.O. Box 26 Bluffton, OH 45817-0026 419-358-6941 Maurice Fett, pres.	Bluffton Stone Co. (3)	Allen	limestone	107,938	72,449	An-1	IM-485
Bolin & Bartley, Inc. 1217 County Rd. 1475 Rte. 1 Ashland, OH 44805 419-289-1507 Clarence W. Bolin, treas.	Bolin & Bartley Sand & Gravel (409)	Richland	sand & gravel	16,206	36,600	Rd-20	IM-617
Elmer Borchardt, Inc. 313 E. Lucas St. P.O. Box 188 Castalia, OH 44824-0188 419-684-5361 Dean Borchardt, pres.	Elmer Borchardt, Inc. (83)	Erie	sand & gravel	15,500	15,500	Ee-18	IM-676
Bowerston Shale Co. 1329 Seven Hills Rd. NE Newark, OH 43055 614-763-3921 William U. Milliken, pres.	Bowerston Shale Co. (31) Bowerston Shale Co. (38)	Licking Muskingum	shale clay	21,528 9,980	21,528 9,980	Lg-501 Mum-776	IM-257 IM-256

[6]No sales or production.
[7]No report filed in 1987.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Bowerston Shale Co. 515 Main St. Bowerston, OH 44695 614-269-2921 William U. Milliken, pres.	Bowerston Shale Co. (11)	Harrison	shale	8,000	8,000	Hn-152	IM-42
D. H. Bowman & Sons, Inc. 1201 State Rte. 97 P.O. Box 57 Bellville, OH 44813-1227 419-886-2711 Richard D. Bowman, pres.	D. H. Bowman & Sons, Inc. (287)	Richland	sand & gravel	61,057	49,241	Rd-4	IM-279
Boyas Excavating, Inc. 4100 Brookpark Rd. Cleveland, OH 44134-1196 216-398-3900 Pete Boyas, pres.	Boyas' Valley View Quarry (13)	Cuyahoga	sandstone	[8]		Cya-BE[9]	IM-686
Boyd Gravel Co. 24270 Twp. Rd. 1202 Coshocton, OH 43812 614-622-4406 Don Mill, pres.	Boyd Gravel Co. (71)	Coshocton	sand & gravel	68,714	55,872	Cn-694	IM-293
Braun Enterprises P.O. Box 2275 Wintersville, OH 43952 614-264-5759 David Patterson, owner	Riesback Pit[10]	Belmont	limestone	3,474	3,474	Bt-1161	
Briar Hill Stone Co. P.O. Box 398 Glenmont, OH 44628 216-276-4011 Fred J. Lydic, pres.	Quarry #26 (4)	Coshocton	sandstone	686	1,237	Cn-13	IM-397
	Quarry #3 (5)	Coshocton	sandstone	6,125	4,899	Cn-659	IM-232
	Quarry #32 (6)	Coshocton	sandstone	1,044	372	Cn-686	IM-504
	Quarry #24 (7)	Coshocton	sandstone	2,945	2,378	Cn-692	IM-294
	Quarry #18 (8)	Coshocton	sandstone	1,431	1,662	Cn-695	IM-402
	Quarry #54 (46)	Coshocton	sandstone	682	836	Cn-809	IM-909
	Quarry #55 (44)	Coshocton	sandstone	1,313	1,304	Cn-815	IM-939
	Quarry #31 (19)	Holmes	sandstone	419	601	Hs-49	IM-418
	Quarry #34 (22)	Knox	sandstone	[8]		Kx-10	IM-444
	Quarry #6 (23)	Knox	sandstone	1,770	1,060	Kx-12	IM-445
Briggs Sand & Gravel, Inc. Rte. 4 Box 303 Marietta, OH 45750 614-373-3363 James F. Briggs, pres.	Briggs Sand & Gravel, Inc. (365)	Washington	sand & gravel	21,172	21,172	Wn-508	IM-57
Broadway Sand & Gravel, Inc. 2000 Sandridge Dr. Dayton, OH 45439 513-299-1166 Herbert H. Cornett, pres.	Broadway Sand & Gravel, Inc. (225)	Montgomery	sand & gravel	74,957	74,957	My-65	IM-594
Bros. Sand & Gravel Co. 5366 County Rd. 349 Rte. 1 Millersburg, OH 44654 216-674-4254 Gene Menuez, pres.	Fair Pit (153)	Holmes	sand & gravel	83,205	83,205	Hs-82	IM-707
Broshear Contractors, Inc. 2520 Millville-Ross Rd. Hamilton, OH 45013 513-863-3388 Clarence Broshear, pres.	Ross Township Gravel (31)	Butler	sand & gravel	[8]		Br-48	IM-562
Brown County Rock Crusher State Rte. 221 Georgetown, OH 45121 513-378-6456 James G. Beasley, county engineer	Brown County Rock Crusher (14)	Brown	limestone	1,912	1,912	Bn-1	
D & L Browning Excavating, Inc. 5593 Mason-Morrow-Millgrove Rd. Morrow, OH 45152 513-899-3751 Daniel L. Browning, owner	River Sand & Gravel (391)	Warren	sand & gravel	30	0	Wan-B[9]	IM-679
Karl Brugmann Sand & Gravel, Inc. 8420 Weaver Rd. Ravenna, OH 44266 216-626-3914 Donald H. Brugmann, owner	Karl Brugmann Sand & Gravel, Inc. (257)	Portage	sand & gravel	63,667	49,738	Pe-15	IM-104

[8]No sales or production.
[9]No mine number has been assigned by the Division of Mines.
[10]This mine is not shown on the map.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Oscar Brugmann Sand & Gravel, Inc. 3828 Dudley Rd. Mantua, OH 44255 216-274-8224 Roy Brugmann, pres.	Oscar Brugmann Sand & Gravel, Inc. (258)	Portage	sand & gravel	334,433	402,000	Pe-9	IM-119
James Bunnell, Inc. 5714 State Rte. 128 Cleves, OH 45002 513-353-1100 James Bunnell, pres.	James Bunnell, Inc. (123) James Bunnell, Inc. (124)	Hamilton Hamilton	sand & gravel sand & gravel	250 497,947	250 497,947	Hmn-50 Hmn-59	IM-205 IM-815
Burlington Sand & Gravel Co. P.O. Box 399 Chesapeake, OH 45619 614-894-5978 Vernon E. Collier, owner	Burlington Sand & Gravel Co. (170)	Lawrence	sand & gravel	19,011	19,011	Le-426	IM-856
C. D. Materials P.O. Box 145 Garrison, KY 41141 606-757-2138 William F. Love, pres.	Piketon Pit (252)	Pike	sand & gravel	[11]		Pke-26	IM-142
C. E. Basic Subsidiary of Combustion Engineering P.O. Box 600 Bettsville, OH 44815 419-986-5111 G. W. Mattson, supt.	Maple Grove (106)	Seneca	limestone	[12]		Sa-2	IM-352
Canton Aggregate Div. of Central Allied Enterprises, Inc. P.O. Box 80449 Canton, OH 44708 216-477-6751 John A. Woodhall, Jr., pres.	Canton Aggregate (318) Canton Aggregate (319)	Stark Stark	sand & gravel sand & gravel	410,402 132,282	410,402 132,282	Sk-681 Sk-689	IM-164 IM-173
Carpenter's Excavating 4224 Fernbrook St. Kettering, OH 45440 513-299-3100 William D. Carpenter, owner	Carpenter's Excavating (228)	Montgomery	sand & gravel	1,799	1,799	My-67	IM-725
Cedar Heights Clay Co. P.O. Box 295 Oak Hill, OH 45656-0295 614-682-7794 William T. Tredennick, pres.	Cedar Heights Clay Co. (21) Cedar Heights Clay Co. (22)	Jackson Jackson	clay clay	12,505 9,791	12,505 9,791	Jkn-1001 Jkn-1007	IM-19, IM-336 IM-24
Celotex Corp. P.O. Box 280 Port Clinton, OH 43452 419-734-3153 W. D. Herbert, pres.	American #2 (1)	Ottawa	gypsum	256,307	256,307	Oa-2	IM-344
Central Ohio Coal Co. P.O. Box 98 Cumberland, OH 43732 614-962-2013 J. E. Katlic, exec. v. pres.	Horse Run (73) Tilton's Run (141) Hoskinsville Stone Quarry (138)	Morgan Muskingum Noble	limestone limestone limestone	7,089 145,551 142,286	7,089 145,551 142,286	Mon-600 Ne-41 Ne-147	IM-281 D-0559 IM-921, D-0056
Central Silica Co. 806 Market St. P.O. Box 4477 Zanesville, OH 43702-4477 614-452-2775 James P. Snider, v. pres. & gen. mgr.	Millwood Sand Division (24) Central Silica Co. (31)	Knox Perry	sandstone sandstone	155,646 257,226	155,646 257,226	Kx-1 Py-202	IM-269 IM-14
Charlestown Sand & Gravel Co. 7845 State Rte. 5 Ravenna, OH 44266 216-296-9233 Raymond C. Sommers, partner	Charlestown Sand & Gravel Co. (259)	Portage	sand & gravel	39,335	39,335	Pe-17	IM-123
Chattin Concrete 9978 State Rte. 220 P.O. Box 49 Waverly, OH 45690 614-947-4677 William H. & Jeffery Chattin, partners	Chattin Concrete (253)	Pike	sand & gravel	1,045	2,000	Pke-23	IM-242
Chesterhill Stone Co. 773 East State Rte. 60 NE P.O. Box 599 McConnelsville, OH 43756 614-962-5621 Fred R. Price, pres.	Plant #2 (240) Plant #1 (75) Plant #3 (366)	Morgan Muskingum Washington	sand & gravel limestone sand & gravel	173,951 438,132 133,745	190,728 477,424 144,477	Mon-588 Mum-106 Wn-56	IM-35 IM-297 IM-857

[11]No report filed in 1987.
[12]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Chesterville Sand & Gravel Co., Inc. State Rte. 95 E P.O. Box 51 Chesterville, OH 43317 419-768-3369 Carrol D. Gleason, pres.	Chesterville Sand & Gravel Co., Inc. (242)	Morrow	sand & gravel	76,212	76,212	Mw-10	IM-258
Christman Quarry 47278 Swazey Rd. Lewisville, OH 43754 614-838-2475 Gerald L. Christman, owner	Christman Quarry (69)	Monroe	limestone	74,960	74,960	Me-501	IM-76
City of Lancaster 104 E. Main St. Lancaster, OH 43130 614-653-5693 L. Kent Huston, city engineer	City of Lancaster (402)	Fairfield	sand & gravel	[13]		Fd-15	IM-938
Clark Clay Co. R.D. 6 Box 58 Millersburg, OH 44654 216-674-5150 Dwight S. Clark, owner	Clark Clay Co. (17)	Holmes	clay	5,874	3,501	Hs-56	
Claycraft Co. P.O. Box 866 Columbus, OH 43216 614-866-3300 P. W. Tefft, pres.	Claycraft Plant #4 Shale Pit (9) Claycraft Plant #1 Clay Pit (73)	Franklin Wyandot	shale clay	307,600 42,150	307,600 42,150	Fn-1 Wt-7	IM-322 IM-407
Cleveland Quarries Co. P.O. Box 261 Amherst, OH 44001-0261 216-986-4501 R. C. Bechtel, pres.	Birmingham Quarry (14) Amherst Quarries (27)	Erie Lorain	sandstone sandstone	4,101 84,629	4,101 84,629	Ee-21 Ln-3	IM-416 IM-415
Columbia Portland Cement Corp. P.O. Box 1531 Zanesville, OH 43701 614-849-2311 W. P. Cannon, mgr.	Lyle Quarry (76) (39) Jonathon Mine (76)	Muskingum Muskingum	limestone shale limestone	[14] [14] [14]		Mum-24 Mum-24 Mum-91	IM-830 IM-303 IM-830
Con-Ag, Inc. Rte. 1 County Hwy. 66A N St. Marys, OH 45885 419-394-8870 Robert E. Hirschfeld & Lee Kuck, owners	Con-Ag, Inc. (10)	Auglaize	limestone	159,267	159,267	Ae-31	IM-744
Connolly Construction Co., Inc. 825 W. Sixth St. P.O. Box 271 Marysville, OH 43040 513-644-8831 Phillip Connolly, pres.	East Liberty Quarry (49)	Logan	limestone	472,257	472,257	Lgn-1	IM-574
Conotton Valley Quarries Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	Conotton Valley Quarries Co. (1)	Carroll	sandstone	620	770	Cl-102	IM-278
Cooper Sand & Gravel P.O. Box 427 Russells Point, OH 43348 513-843-3426 Kenneth Cooper, partner	Cooper Sand & Gravel (411)	Logan	sand & gravel	[13]		Lgn-40	IM-996
County Line Sand & Gravel 659 W. County Line Rd. Springfield, OH 45502 513-399-9200 John W. Martin, Jr., owner	County Line Sand & Gravel (53)	Clark	sand & gravel	3,454	2,309	Ck-27	IM-549
Cox Gravel, Inc. P.O. Box 127 Dresden, OH 43821 614-754-2011 Richard Cox, pres.	Jennings-Lacy (244) Prospect (243)	Muskingum Muskingum	sand & gravel sand & gravel	154,609 47,446	218,096 52,864	Mum-799 Mum-863	IM-317 IM-264
Crates Excavating 14628 State Rte. 31 Kenton, OH 43326 419-675-1558 Roger Crates, owner	Crates #1 (406)	Hardin	sand & gravel	[13]		Hdn-5	IM-907

[13]No sales or production.
[14]No report filed in 1987.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Cravat Coal Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	Dover Pit (13)	Belmont	limestone	24,111	21,552	Bt-119	IM-733
Crooksville Coal Co., Inc. P.O. Box 149 Crooksville, OH 43731 614-982-6651 Ralph L. Allen, pres.	Clark #1 (137)	Perry	limestone	[15]		Py-330	IM-898
R. A. Cruise Sand & Gravel, Inc. 7639 State Rte. 14 Ravenna, OH 44266 216-297-7411 Larry R. Cruise, pres.	R. A. Cruise Sand & Gravel, Inc. (261)	Portage	sand & gravel	44,490	44,490	Pe-45	IM-139
Cummins Family Contracting 7703 Rd. 207 DeGraff, OH 43318 513-585-4032 Richard E. Cummins, owner	Cummins Family Contracting (190)	Logan	sand & gravel	728	0	Lgn-38	IM-881
Cunningham Asphalt Paving, Inc. P.O. Box 370 Wheelersburg, OH 45694 614-574-6184 Karl Cunningham, pres.	Cunningham Pit (304)	Scioto	sand & gravel	[15]		So-83	IM-211
D & D Sand Bank Rte. 7 Box 473 South Point, OH 45680 614-377-4765 Dale M. Pemberton, owner	D & D Sand Bank (388)	Lawrence	sand & gravel	18,624	18,624	Le-445	IM-928
D & J Energy, Inc. Rte. 1 Box 351 Bidwell, OH 45614 614-245-5316 John P. Holley, pres.	D & J Energy, Inc. (46)	Jackson	limestone	[15]		Jkn-583	IM-894
D & W Gravel Co. 10677 Wren Rd. Mechanicsburg, OH 43044 513-834-3242 Dale Potter, owner	D & W Sand & Gravel (49)	Champaign	sand & gravel	8,488	3,410	Cpn-21	IM-616
J & J Davenport 923 McBurny Dr. Lebanon, OH 45036 513-932-5497 Jim & Jane Davenport, owners	J & J Davenport (356)	Warren	sand & gravel	300	300	Wan-47	IM-846
Davis Sand & Gravel 311 Mt. Zion Rd. SW Lancaster, OH 43130 614-687-1876 Richard P. Davis, owner	Davis Sand & Gravel (91)	Fairfield	sand & gravel	[16]		Fd-12	IM-451
Davon, Inc. 4281 Rousch Rd. Hillsboro, OH 45133 513-393-4211 John B. Patton, pres.	Plum Run Stone Division (1) Highland Stone Division (41)	Adams Highland	limestone limestone	1,306,114 544,856	1,234,716 610,167	Ads-1 Hd-2	IM-237 IM-230
Demmy Sand & Gravel 4324 Fairfield Pike Springfield, OH 45502 513-325-8840 Woodrow Demmy, owner	Demmy Sand & Gravel (54)	Clark	sand & gravel	18,890	18,890	Ck-502	IM-375
Dennis Clay Co. State Rte. 37 Box 10922 New Lexington, OH 43764 614-342-5269 Tom L. Dennis, owner	Corder Mine (74) Olson Mine (43) Browning-Bateson-Ferguson-Hall (75)	Muskingum Perry Perry	clay clay clay shale	10,600 4,406 2,199 11,492	10,600 4,406 3,250 11,492	Mum-D[17] Py-296 Py-331	IM-917 IM-37 IM-920
Diamond Crystal Salt Co. 2065 Manchester Rd. P.O. Box 149 Akron, OH 44309-0149 216-745-0031 Alan B. Graf, pres.	Diamond Crystal Salt Co. (4)	Summit	salt	225,873	239,017	St-9127	

[15]No sales or production.
[16]No report filed in 1987.
[17]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Diamond Stone Quarries, Inc. P.O. Box 66 Albany, OH 45710 614-698-2431 W. E. Engle, pres.	Plant No. 1 (8) Plant No. 2 (9)	Athens Athens	limestone limestone	[18] [18]		As-532 As-533	IM-16, IM-597 IM-17
A. J. Diana Sons, Inc. 1916 Erie Ave. NW P.O. Box 488 Massillon, OH 44648 216-832-5904 Virgil V. Diana, pres.	Neidert Pit (320)	Stark	sand & gravel	22,590	20,306	Sk-694	IM-858
Dingledine Sand & Gravel 4560 Oxford-Trenton Rd. Oxford, OH 45056 513-726-5258 Gerald Dingledine, owner	Dingledine Sand & Gravel (32)	Butler	sand & gravel	36,510	36,510	Br-50	IM-739
Dravo Basic Materials Co., Inc. 5253 Wooster Rd. Cincinnati, OH 45226 513-321-2700 H. Donovan Ross, pres.	Fairfield Plant (33) Ross Plant (34) Cleves Plant (126) Camp Dennison Plant (127) Newtown Plant (128) Cleves Plant (131) Apple Grove Plant (209) South Lebanon Plant (352)	Butler Butler Hamilton Hamilton Hamilton Hamilton Meigs Warren	sand & gravel sand & gravel sand & gravel sand & gravel sand & gravel sand & gravel sand & gravel sand & gravel	44,146 535,563 [19] 472,044 1,371,368 594,564 3,437 26,054	0 860,945 581,643 1,256,837 686,011 521,301 0	Br-14 Br-29 Hmn-3 Hmn-5 Hmn-11 Hmn-68 Ms-205 Wan-41[20]	IM-147 IM-149 IM-137, IM-801 IM-148 IM-133 IM-747 IM-30 IM-629
Joe Dresbach Farms 2626 Higby Rd. Chillicothe, OH 45601 614-884-4944 Joe Dresbach, owner	Joe Dresbach Farms (296)	Ross	sand & gravel	[19]		Rs-12	IM-560
Dry Creek Gravel Co. 2097 Mt. Vernon Rd. Newark, OH 43055 614-366-3333 Gail Wolfe, pres.	Dry Creek Farms (176) Water Works (400) Dry Creek Gravel Co. (177)	Licking Licking Licking	sand & gravel sand & gravel sand & gravel	223,000 28,000 14,400	223,000 28,000 14,400	Lg-31 Lg-502 Lg-DC[21]	IM-246 IM-956 IM-354
C. E. Duff & Son, Inc. 9042 State Rte. 117 P.O. Box 265 Huntsville, OH 43324 513-686-2488 James E. Duff, pres.	C. E. Duff & Son, Inc. (50) Duff Sand Co. (182) C. E. Duff & Son, Inc. (183)	Logan Logan Logan	limestone sand & gravel sand & gravel	185,326 68,932 [19]	185,326 68,932	Lgn-15 Lgn-31 Lgn-39	IM-453 IM-454 IM-887
East Ohio Limestone Co. P.O. Box 699 Hartville, OH 44632 216-877-2636 Charles "Ed" Allenbaugh, supt.	East Ohio Limestone Co. (113)	Stark	limestone	147,856	147,856	Sk-663	IM-5
Eberhart Coal, Inc. Rte. 3 Box 89 Dover, OH 44622-9507 216-343-5677 Phillip H. Eberhart, pres.	Eberhart #2 Hott Strip (61) Eberhart #2 Hott Strip (78)	Tuscarawas Tuscarawas	clay clay	4,907 5,000	4,907 5,000	Ts-1882 Ts-1994	D-0013 IM-985
Economy Sand Co. P.O. Box 754 Proctorville, OH 45669 614-894-5859 L. Dale Manns, pres.	Economy Sand Co. (171)	Lawrence	sand & gravel	[19]		Le-441	IM-931
Eldean Gravel Co. 135 E. Main St. P.O. Box 440 Tipp City, OH 45371 513-667-4431 James Ernst, pres.	Eldean Gravel Co. (215)	Miami	sand & gravel	[19]		Mi-2	IM-367
Elm Spring Farm 938 State Rte. 207 Chillicothe, OH 45601 614-775-5525 Joanna J. Haskins, owner	Elm Spring Farm (297)	Ross	sand & gravel	[19]		Rs-26	IM-922
Englewood Sand & Gravel Co., Inc. 355 E. Wenger Rd. P.O. Box 96 Englewood, OH 45322 513-836-2637 Denzil W. Wilson, pres.	Englewood Sand & Gravel Co., Inc. (230) Englewood Sand & Gravel Co., Inc. (392)	Montgomery Montgomery	sand & gravel sand & gravel	[19] 42,808	 42,808	My-5 My-64	IM-600 IM-795

[18]No report filed in 1987.
[19]No sales or production.
[20]See also Carl E. Oeder & Sons Sand & Gravel.
[21]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
M. T. Epling Co. 1725 Eastern Ave. Gallipolis, OH 45631 614-446-2742 M. T. Epling, pres.	Georges Creek Pit (105) M. T. Epling Sand & Gravel Plant (106)	Gallia Gallia	sand & gravel sand & gravel	15,462 [22]	0	Ga-243 Ga-245	IM-238
Erie Blacktop, Inc. 4507 Tiffin Ave. P.O. Box 2308 Sandusky, OH 44870 419-625-7374 Dean Wikel, pres.	Erie Blacktop, Inc. (24)	Erie	limestone	[22]		Ee-27	IM-608
Erie Sand & Gravel Co. P.O. Box 153 Erie, PA 16512-0153 814-453-6721 Sidney E. Smith, Jr., pres.	Erie Sand & Gravel Co. (1)	Lake Erie	sand & gravel (dredged)	47,910	0		
Ernst Aggregates, Inc. 135 E. Main St. P.O. Box 440 Tipp City, OH 45371 513-667-4431 James Ernst, pres.	Bellbrook Gravel-Foreman Pit (111) Spring Valley Plant (404)	Greene Greene	sand & gravel sand & gravel	[22] 383,047	422,240	Ge-25 Ge-42	IM-437 IM-954
Ernst Gravel Co. 135 E. Main St. P.O. Box 440 Tipp City, OH 45371 513-667-4431 James Ernst, pres.	Ernst Gravel Co. (216)	Miami	sand & gravel	141,350	188,297	Mi-6	IM-356
Don Evans Sand & Gravel 6578 Kilby Rd. Harrison, OH 45030 513-367-9530 Don Evans, owner	Don Evans Sand & Gravel (133)	Hamilton	sand & gravel	[23]		Hmn-65	IM-736
Fairfield Brick Co. P.O. Box 115 Zoarville, OH 44656-0115 216-343-7067 O. J. Buehler, pres.	Fairfield Brick Co. (62)	Tuscarawas	shale	[22]		Ts-527	IM-583
Fairfield Ready Mix P.O. Box 9175 Fairfield, OH 45014 513-868-2400 Rex Allan, pres.	Fairfield Ready Mix (36)	Butler	sand & gravel	[23]		Br-53	IM-903
Feikert Sand & Gravel, Inc. 6971 County Rd. 189 Rte. 5 Box 365 Millersburg, OH 44654-9186 216-674-0038 Charles E. Feikert, pres.	Feikert Sand & Gravel, Inc. (154)	Holmes	sand & gravel	66,620	66,620	Hs-511	IM-345
Fenner Sand & Gravel 7131 W. Fenner Rd. Ludlow Falls, OH 45339 513-698-7048 Robert P. Snead, pres.	Woodville Concrete Corp. (222)	Miami	sand & gravel	52,500	47,000	Mi-4[24]	IM-472
Ferris Coal Co., Inc. 371 South St. East Palestine, OH 44413 216-426-9680 Theresa Ferris, pres.	Ferris Coal Co., Inc. (4) (4)	Columbiana	clay shale	[23] [23]		Ca-505	IM-13
Fleckenstein Farm Gravel Pit 11251 State Rte. 66 Minster, OH 45865 513-295-2417 Ferd J. Fleckenstein, owner	Fleckenstein Farm Gravel Pit (310)	Shelby	sand & gravel	5,988	5,471	Shy-12	IM-528
Fleming Construction Co., Inc. P.O. Box 31 Marion, OH 43302 614-494-2476 Gerald E. Fleming, pres.	Fleming Construction Co., Inc. (197)	Marion	sand & gravel	[22]		Mn-16	IM-171

[22]No sales or production.
[23]No report filed in 1987.
[24]This mine was operated 1st and 2nd quarters 1987 by Woodville Concrete Corp. and 3rd and 4th quarters by Fenner Sand & Gravel.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Flesher Sand & Gravel, Inc. 3322 Clark Mill Rd. Norton, OH 44203 216-745-9239 Dallas Flesher, owner	Flesher Sand & Gravel Inc. (327)	Summit	sand & gravel	25,670	25,670	St-52	IM-900
Foureman's Sand & Gravel, Inc. 2791 Wildcat Rd. Greenville, OH 45331 513-548-1718 Gary B. Foureman, pres.	Foureman's Sand & Gravel, Inc. (80)	Darke	sand & gravel	59,960	51,762	Dke-4	IM-433
The France Stone Co. P.O. Box 1928 Toledo, OH 43603 419-241-4101 Ollie J. Risner, pres.	Waterville (52)	Lucas	limestone	413,459	528,690	Ls-1	IM-575
	Silica (53)	Lucas	limestone	868,129	889,503	Ls-3	IM-580
	Paulding (86)	Paulding	limestone	275,767	324,372	Pg-7	
	Flat Rock (107)	Seneca	limestone	977,211	1,371,191	Sa-1	IM-347
	Bloomville (108)	Seneca	limestone	395,453	437,720	Sa-3	IM-349
	North Baltimore (128)	Wood	limestone	[25]		Wd-2	IM-576
	Custar (129)	Wood	limestone	200,944	150,067	Wd-5	IM-473
Fredericktown Sand & Gravel Co. P.O. Box 112 Fredericktown, OH 43019 614-694-2096 Richard R. Stander, pres.	Fredericktown Sand & Gravel Co. (159)	Knox	sand & gravel	190,633	222,189	Kx-13	IM-343
Frye Sand & Gravel, Inc. 3049 S. Denmark Rd. P.O. Box 3 Dorset, OH 44032 216-858-2627 Harold L. Frye, owner	Frye Sand & Gravel, Inc. (9)	Ashtabula	sand & gravel	[25]		Asa-10	IM-198
Fuhrer Farms & Mining 258 Ninth St. SW Strasburg, OH 44680 216-878-5256 Jack Fuhrer, partner	Fuhrer Farms & Mining (136)	Tuscarawas	limestone	3,153	1,822	Ts-1961	IM-845
G & M Supply, Inc. dba Clinton Stone Co. 1203 N. Pennsylvania Ave. P.O. Box 468 Wellston, OH 45692 614-384-5659 Bonny A. Huffman, pres.	Sands Hill Strip (124)	Vinton	limestone	266,304	266,304	Vn-174	D-0309
Ganges Gravel 153 North Gambel St. P.O. Box 42 Shelby, OH 44875 419-342-5361 J. J. Scott, owner	Ganges Gravel (289)	Richland	sand & gravel	1,199	1,199	Rd-18	IM-670
John Garber Materials, Inc. Rte. 8 Lexington, OH 44904 419-884-1567 John L. Garber, pres.	John Garber Materials, Inc. (290)	Richland	sand & gravel	203,177	157,400	Rd-14	IM-436
General Clay Products Corp. P.O. Box 236 Baltic, OH 43804-0236 216-897-7171 Harold B. Epler, Jr., pres.	Drescher Pit (6)	Coshocton	clay	[25]		Cn-787	IM-610
	(6)		shale	36,142	36,142		
	Troyer Pit (18)	Holmes	shale	10,106	10,106	Hs-77	IM-545
General Clay Products Corp. P.O. Box 550 Logan, OH 43138 614-385-5616 Harold B. Epler, Jr., pres.	General Clay Products Corp. (12)	Hocking	clay	20,785	20,785	Hg-205	IM-21
	(12)		shale	19,184	19,184		
General Clay Products Corp. P.O. Box 340 Wadsworth, OH 44281 216-335-1515 Harold B. Epler, Jr., pres.	General Clay Products Corp. (37)	Medina	clay	[25]		Ma-6	IM-455
	(37)		shale	49,959	49,959		
Gerken Materials, Inc. P.O. Box 607 Napoleon, OH 43545 419-533-2421 Julian A. Gerken, pres.	Gerken Materials, Inc. (147)	Henry	sand & gravel	16,098	142,460	Hy-5	

[25]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Gibson Sand & Gravel Co. 1385 Knorr Rd. Galion, OH 44833 419-468-5527 Arthur T. Gibson, owner	Gibson Sand & Gravel Co. (75)	Crawford	sand & gravel	256	256	Cd-3	IM-693
Glen-Gery Corp 5692 Rinker Rd. P.O. Box 398 Caledonia, OH 43314 419-845-3321 Richard Boxall, pres.	Glen-Gery Corp. (36)	Marion	shale	109,614	109,614	Mn-7	IM-309
Goodwin Sand & Gravel, Inc. 126 S. Norton St. Mt. Vernon, OH 43050 614-392-7971 Don E. Mill, pres.	Goodwin Sand & Gravel, Inc. (160)	Knox	sand & gravel	62,374	116,500	Kx-7	IM-235
Gottron Bros. Co. 100 South Stone St. Fremont, OH 43420 419-332-5281 Thomas P. Gottron, Jr., v. pres.	Gottron Bros. Co. (101)	Sandusky	limestone	95,945	83,300	Sy-5	IM-259
The Gravel Co. 325 Clark Rd. P.O. Box 15501 Cincinnati, OH 45215 513-761-4980 Roy B. Schweitzer, pres.	The Gravel Co. (63)	Clinton	sand & gravel	[26]		Cln-10	IM-638
Gregory Materials Co. 14133 U.S. Rte. 23 N Waverly, OH 45690 614-947-5559 Ernest Gregory, owner	Plant #1 (254)	Pike	sand & gravel	7,554	0	Pke-30	IM-786
Gregory Stone Co., Inc. 3244 S. Davis Rd. Ludlow Falls, OH 45339 513-275-7455 William T. Gregory, Jr.,pres.	Gregory Quarry (65)	Miami	limestone	3,546	3,546	Mi-16	IM-414
Gwin Contracting Co. P.O. Box 205 Columbiana, OH 44408 216-482-2442 Lyle D. Gwin, pres.	Gwin Contracting Co. (30)	Mahoning	sandstone	18,035	18,035	Mg-62	IM-599
H & H Utilities Co. 7307 S. Kessler-Frederick Rd. West Milton, OH 45383 513-223-6752 Gerald Hochwalt, pres.	H & H Gravel (229)	Montgomery	sand & gravel	5,689	6,854	My-68	IM-646
H & M Sand & Gravel Co. 1022 Blanchard Ave. P.O. Box 497 Findlay, OH 45839 419-422-5923 Ivan D. Hobbs, pres.	H & M Sand & Gravel Co. (380) H & M Sand & Gravel Co. (380) H & M Sand & Gravel Co. (381)	Wyandot Wyandot Wyandot	sand & gravel sand & gravel sand & gravel	215,807 0 [26]	196,031 52,460	Wt-5 Wt-15 Wt-18	IM-376 IM-376 IM-551
J. M. Hamilton & Sons Co., Inc. 1974 Marion-Bucyrus Rd. Marion, OH 43302 614-382-2189 O. E. & A. M. Hamilton, owners	J. M. Hamilton & Sons Co., Inc. (59)	Marion	limestone	109,114	109,114	Mn-2	IM-423
Hard Rocks, Inc. 9340 State Rte. 5 NE Kinsman, OH 44428 216-876-1565 Dan White, pres.	Hard Rocks, Inc. (40)	Trumbull	sandstone	19,445	22,800	Tl-13	IM-777
Hardin Quarry Co., Inc. 12484 State Rte. 701 Kenton, OH 43326 419-675-1327 Richard Pees, pres.	Hardin Quarry Co., Inc. (38)	Hardin	limestone	137,651	137,651	Hdn-2	IM-443
Harris Excavating Co. R.D. 1 State Rte. 113 Berlin Heights, OH 44814-9101 419-588-2518 Warren & Monty Harris, partners	Harris Excavating Co. (15)	Erie	sandstone	[27]		Ee-15	IM-708

[26]No sales or production.
[27]No report filed in 1987.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Harrison Sand & Gravel Co. 10980 Campbell Rd. Harrison, OH 45030 513-637-5174 Donald Gauck, mgr.	Harrison Sand & Gravel Co. (135)	Hamilton	sand & gravel	107,584	111,881	Hmn-17	IM-295
Hartville Sand & Gravel, Inc. P.O. Box 1009 Hartville, OH 44632 216-877-9613 William H. Leach, Sr., pres.	Hartville Sand & Gravel, Inc. (321)	Stark	sand & gravel	28,467	9,480	Sk-182	IM-67
Haubeil & Sons Asphalt & Materials, Inc. 691 Marietta Pike Chillicothe, OH 45601 614-773-6358 Robert & George Haubeil, co-owners	Haubeil & Sons Asphalt & Materials, Inc. (298)	Ross	sand & gravel	[28]		Rs-24	IM-735
Haueter Sand & Gravel Co. P.O. Box 206 Chardon, OH 44024 216-286-9482 Donald H. Haueter, pres.	Haueter Sand & Gravel Co. (108)	Geauga	sand & gravel	211,630	211,630	Gea-29	IM-215
Heiser Sand & Gravel P.O. Box 2491 North Canton, OH 44720 216-499-8201 Richard L. Heiser, owner	Heiser Sand & Gravel (322) Heiser Sand & Gravel (323)	Stark Stark	sand & gravel sand & gravel	[29] 97,497	 87,949	Sk-206 Sk-688	IM-715 IM-763
Heiser Stone Co. P.O. Box 2491 North Canton, OH 44720 216-499-8201 Richard L. Heiser, owner	Heiser Stone Co. (55) Heiser Stone Co. (397)	Mahoning Tuscarawas	limestone sand & gravel	[29] 29,510	 20,281	Mg-43 Ts-1977	IM-723 IM-692
Hillsdale Sand & Gravel, Inc. P.O. Box 223 Archbold, OH 43502 419-445-1015 Dean Miller, pres.	Hillsdale Sand & Gravel, Inc. (82)	Defiance	sand & gravel	52,965	3,927	De-2	IM-765
Hilltop Aggregate, Inc. P.O. Box 362 Mogadore, OH 44260 216-628-4000 Robert W. West, pres.	Hilltop Aggregate, Inc. (262)	Portage	sand & gravel	266,434	266,434	Pe-56	IM-127
Hilltop Basic Resources, Inc. 630 Vine St. Cincinnati, OH 45202 513-651-5000 Thomas D. Harrington, pres.	Fairborn Aggregate Plant (112) West Carrollton Aggregate Plant (232)	Clark, Greene Montgomery	sand & gravel sand & gravel	484,302 603,393	524,395 531,252	Ge-4 My-19	IM-394 IM-401
Hilltop Basic Resources, Inc. dba Enon Washed Sand & Gravel Co. 1665 Enon-Donnelsville Rd. P.O. Box 363 Enon, OH 45323 513-299-6058 Thomas D. Harrington, pres.	Enon Washed Sand & Gravel Co. (57)	Clark	sand & gravel	233,130	212,635	Ck-3	IM-463
Hocking County Engineer 1286 California Ave. Logan, OH 43138-8999 614-385-3510 Douglas A. Neff, admin. asst.	Hocking Co. Gravel Pit (150)	Hocking	sand & gravel	[29]		Hg-296	IM-559
Hocking Valley Concrete, Inc. 35255 Hocking Dr. Logan, OH 43138 614-385-2165 William G. Vaughn, pres.	Hocking Valley Concrete (151)	Hocking	sand & gravel	[28]		Hg-262	IM-41
Tom Hollinger Excavating 2097 Hollansburg-Arcanum Rd. New Madison, OH 45346 513-996-5381 Thomas W. Hollinger, leasee	Hollinger Gravel Plant (81)	Darke	sand & gravel	1,918	1,918	Dke-10	IM-326

[28]No report filed in 1987.
[29]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Holmes Limestone Co. P.O. Box 295 Berlin, OH 44610 216-893-2721 E. E. Mullet, pres.	241 Plant (44) (19) Wayne Mines (45) Bolivar Mine (76)	Holmes Holmes, Wayne Stark	limestone clay limestone clay	83,363 42,104 146,303 5,537	95,790 29,369 192,905 5,537	Hs-67 Hs-79[30] Sk-235	IM-768 IM-656 IM-945
Honey Creek Stone Co. P.O. Box 286 Petersburg, OH 44454 216-542-2372 D. B. Carson, pres.	Honey Creek Stone Co. (56)	Mahoning	limestone	153,171	155,484	Mg-54	IM-93
Hornsby Sand & Gravel Co. 7450 Dryfork Rd. Cleves, OH 45002 513-367-6101 Eric Hornsby, pres.	Hornsby Sand & Gravel Co. (354) Hornsby Sand & Gravel Co. (355)	Warren Warren	sand & gravel sand & gravel	[31] [31]		Wan-46 Wan-H[32]	IM-679 IM-842
Huck Farms Rte. 3 McConnelsville, OH 43756 614-962-3467 Lewis & Cecil Huck, partners	Huck Farms (241)	Morgan	sand & gravel	[33]		Mon-599	
Warner L. Hughes, Inc. 2375 Waterloo Rd. Suffield, OH 44260 216-628-9916 Warner L. Hughes, Jr., pres.	Hughes Pit (263)	Portage	sand & gravel	1,556	0	Pe-76	IM-678
Hugo Sand Co. 7055 State Rte. 43 Kent, OH 44240 216-673-4710 Dorothy M. Strohm, pres.	Hugo Sand Co. (264)	Portage	sand & gravel	[31]		Pe-10	IM-138
Humphrey Farms P.O. Box 128 Reedsville, OH 45772-0128 614-378-6295 C. Ed Humphrey, owner	Vivian Humphrey (210)	Meigs	sand & gravel	495	495	Ms-295	
Hydraulic Press Brick Co. 8900 Hemlock Rd. P.O. Box 31330 Independence, OH 44131 314-621-9306 W. W. Allen, Jr., pres.	Hydraulic Press Brick Co. (7)	Cuyahoga	shale	233,396	226,732	Cya-19	IM-95
Indian Creek Sand & Gravel Co. 2870 Oxford-Millville Rd. Oxford, OH 45056 513-523-8805 Gaston Bowling, pres.	Indian Creek Sand & Gravel Co. (37)	Butler	sand & gravel	31,000	31,000	Br-40	IM-493
International Salt Co. P.O. Box 6920 Cleveland, OH 44101 216-651-7200 John L. Ryon, Jr., pres.	Cleveland Mine (1)	Cuyahoga	salt	1,591,621	1,649,625	Cya-30	
J. P. Sand & Gravel Co. 5911 Lockbourne Rd. P.O. Box 2 Lockbourne, OH 43137 614-497-0083 Richard A. Roberts, pres.	J. P. Sand & Gravel Co. (98)	Franklin	sand & gravel	417,688	417,688	Fn-52	IM-191
Jackie Lee Limited, Inc. 800 W. Waterloo Rd. Akron, OH 44314 216-753-4531 Jackie Lee Tisci, pres.	Minor Rd. Plant (328)	Summit	sand & gravel	[33]		St-39	IM-130
Janson's Soil Service 1492 Mechanicsville Rd. Rock Creek, OH 44084 216-466-3835 Peter E. Janson, Jr., owner	Janson's Soil Service (10)	Ashtabula	sand & gravel	748	748	Asa-14	IM-563
Jarrett Sand Co. 6505 Skadden Rd. Sandusky, OH 44870 419-359-1750 James Jarrett, owner	Jarrett Sand Co. (84)	Erie	sand & gravel	3,619	0	Ee-29	

[30]All sales and production are from Wayne County.
[31]No report filed in 1987.
[32]No mine number has been assigned by the Division of Mines.
[33]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Jefferson Materials Co. 8505 State Rte. 14 Streetsboro, OH 44241 216-626-3816 John E. Lower, pres.	Howitt (265)	Portage	sand & gravel	233,226	218,163	Pe-63	IM-82
Joseph Sand & Gravel Rte. 6 Boundary Rd. Wapakoneta, OH 45895 419-568-3787 Mary J. Joseph, owner	Joseph Sand & Gravel (23)	Auglaize	sand & gravel	5,059	0	Ae-23	IM-508
Kalo, Inc. 4550 W. 109th St. Suite 222 Overland Park, KS 66211-1383 913-491-9125 John Wise, pres.	Kalo, Inc. (5)	Wyandot	peat	179	0	Wt-14	
John W. Karch Stone Co. P.O. Box 357 Celina, OH 45822 419-586-2335 George Karch, pres.	John W. Karch Stone Co. (62)	Mercer	limestone	342,015	342,015	Mr-1	IM-592
Karg Sand & Gravel Co. 2088 Congress Lake Rd. Mogadore, OH 44260 216-673-1338 Thomas R. Karg, owner	Karg Sand & Gravel Co. (267) Karg Sand & Gravel Co. (266)	Portage Portage	sand & gravel sand & gravel	16,550 9,640	16,550 13,180	Pe-77 Pe-83	IM-730 IM-179
Keener Sand & Clay Co. 330 Dering Ave. Columbus, OH 43207 614-444-1105 Carl F. Weiffenbach, pres.	Huron Plant (85) Gallia Plant (107)	Erie Gallia	sand & gravel sand & gravel	2,485 854	2,485 854	Ee-5 Ga-507	 IM-23
Alvin Keiffer Trucking & Excavating 296 State Rte. 604 Polk, OH 44866 419-869-7238 Alvin Keiffer, owner	Dinsmore Pit (5)	Ashland	sand & gravel	3,212	1,361	Ald-12	IM-579
Kimble Clay & Limestone Co. Rte. 1 Box 386 Dover, OH 44622 216-343-1226 Floyd E. Kimble, owner	Kimble Clay & Limestone Co. (117) (41) (63) (63)	Tuscarawas	limestone sandstone clay shale	98,725 229,448 302,177 630,189	98,725 229,448 302,177 630,189	Ts-1818	IM-9
King Limestone, Inc. 11300 State Rte. 340 Cumberland, OH 43732 614-638-3942 Duane King, pres.	King Limestone, Inc. (79)	Noble	limestone	129,091	116,961	Ne-106	IM-85
Kinsman Sand & Gravel Co. 9443 State Rd. Kinsman, OH 44428 216-876-3321 Glenn B. Harnett, pres.	Kinsman Sand & Gravel Co. (11)	Ashtabula	sand & gravel	171,079	164,437	Asa-K[34]	IM-886
Kipp's Gravel Co., Inc. 4987 State Rte. 222 Batavia, OH 45103 513-732-1024 Melvin M. Kipp, pres.	Kipp's Gravel Co., Inc. (61)	Clermont	sand & gravel	191,216	63,445	Ct-7	IM-432
Kirby's Sand & Gravel, Inc. 4876 Twp. Hwy. 43 Rte. 4 Upper Sandusky, OH 43351 419-927-2260 Noble A. Kirby, owner	Kirby's Sand & Gravel (382)	Wyandot	sand & gravel	17,162	17,552	Wt-17	IM-604
Kishler Coal & Clay Co. P.O. Box 216 Junction City, OH 43748 614-385-5371 Charles L. Kishler, owner	Kishler Coal & Clay Co. (13) (13) Kishler Coal & Clay Co. (45) (45)	Hocking Perry 	clay shale clay shale	[35] [35] [35] [35]		Hg-256 Py-297 	IM-764 IM-850
Kohl Industries Rte. 1 Box 1083 New Philadelphia, OH 44663 216-874-4748 Jerry K. Kohl, owner	Black Hawk (114) (2) (53) (53)	Stark	limestone sandstone clay shale	14,740 20,000 51,762 9,500	14,740 20,000 51,762 9,500	Sk-217	IM-750

[34]No mine number has been assigned by the Division of Mines.
[35]No report filed in 1987.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Kokosing Materials, Inc. P.O. Box 122 Fredericktown, OH 43019 614-694-0616 Gordon Dean Rinehart, pres.	KMI #1 (161)	Knox	sand & gravel	6,973	0	Kx-16[36]	IM-793
R. F. Konik, Inc. 120 Liberty Ave. P.O. Box 39 Vermilion, OH 44089 216-967-7158 Gertrude Finnegan, pres.	Finnegan Sandstone, Inc. (28)	Lorain	sandstone	[37]		Ln-11	IM-555
Edward Kraemer & Sons, Inc. Bolander Rd. Clay Center, OH 43408 419-855-8388 David R. Kraemer, pres.	White Rock Quarry (82)	Ottawa	limestone	1,201,256	1,025,566	Oa-6	IM-296
L & I Trucking & Construction, Inc. 1842 Adams Rd. Loveland, OH 45140 513-683-2045 Alvin Walker, pres.	L & I Trucking & Construction, Inc. (357)	Warren	sand & gravel	120,701	0	Wan-8	IM-240
L. & M. Excavators, Inc. 6075 Cleveland Ave. #205 Columbus, OH 43229 614-895-1056 Charles L. Lewis, pres.	Westerville Industrial Park (99)	Franklin	sand & gravel	29,537	29,537	Fn-54	IM-847
L & M Minerals, Inc. P.O. Box 54 Millersburg, OH 44654 216-893-2227 E. E. Mullet, pres.	Evans (64) (64) Luikert (65) Holmes (66) Spring (77) (77)	Tuscarawas Tuscarawas Tuscarawas Tuscarawas 	clay shale clay shale clay shale	25,400 50,559 [37] 29,307 21,400 6,125	25,400 50,559 29,307 21,400 6,125	Ts-1884 Ts-1914 Ts-1981 Ts-1982 	IM-6 IM-741 IM-621 D-0701
Lafarge Corp. Great Lakes Region P.O. Box 160 Paulding, OH 45879 419-399-4861 Bertrand Collomb, pres.	Paulding Quarry (87) (42)	Paulding	limestone clay	503,418 126,536	503,418 126,536	Pg-1	IM-513
Lake Hope Asphalt, Inc. State Rte. 278 P.O. Box 38 Nelsonville, OH 45764 614-753-1005 Francis Efaw, pres.	Lake Hope Asphalt, Inc. (21)	Athens	sand & gravel	34,988	33,076	As-1161	IM-97
Lakeside Sand & Gravel Co. 3431 Frost Rd. Mantua, OH 44255 216-274-2569 Larry Kotkowski, partner	Lakeside Sand & Gravel Co. (268)	Portage	sand & gravel	177,443	164,266	Pe-40	IM-190
Lancaster Sand & Gravel Co. 3232 Logan-Lancaster Rd. SE Lancaster, OH 43130 614-246-6315 Don E. Mill, pres.	Lancaster Sand & Gravel Co. (92)	Fairfield	sand & gravel	551,488	603,488	Fd-13	IM-848
Lappin's Farm 4309 Newcomer Rd. Kent, OH 44240 216-673-5016 Harley G. Lappin, owner	Lappin's Farm (269)	Portage	sand & gravel	[37]		Pe-82	IM-452
Latham Limestone, Inc. P.O. Box 77 Latham, OH 45646 614-493-2677 Robert Murray, pres.	Latham Limestone, Inc. (91)	Pike	limestone	269,449	240,659	Pke-13	IM-213
Lazy Acre Farms, Inc. 1030 Forest Ave. Zanesville, OH 43701 614-453-1003 Clarence M. Parsons, owner	Lazy Acre Farms, Inc. (396)	Muskingum	sand & gravel	240	341	Mum-261	IM-957

[36]This mine was operated 1st quarter 1987 by Kokosing Materials, Inc., and 2nd through 4th quarters by Olen Corp.
[37]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Lerkis Asphalt Co., Inc. 550 Dan St. Akron, OH 44310 216-376-7560 Gus J. Lerkis, pres.	Lerkis Asphalt Co., Inc. (329)	Summit	sand & gravel	[38]		St-49	IM-159
Lingvai Peat Co. R.R. 2 01693 Rd. 8 Edgerton, OH 43517 419-298-2058 Ronald Lingvai, mgr.	Lingvai Peat Co. (4)	Williams	peat	116	1,097	Ws-17	
W. G. Lockhart & Sons 919 E. Cherry St. Canal Fulton, OH 44614 216-854-2251 A. R. Lockhart, pres.	Lockhart (270)	Portage	sand & gravel	[38]		Pe-WGL[39]	IM-568
London Tile Co. 65 Walnut St. New London, OH 44851 419-929-1551 R. N. Danison, pres.	London Tile Co. (1)	Ashland	clay	[38]		Ald-1	IM-334
Lone Star Marquette P.O. Box 8 Pedro, OH 45659-0008 614-532-4163 John B. Baines, pres.	Bear Run (30)	Lawrence	shale	32,990	32,990	Le-308	IM-31
Luburgh Construction Co. 4090 East Pike Zanesville, OH 43701 614-453-9003 Otto Luburgh, v. pres.	Luburgh Construction Co. (410)	Muskingum	sand & gravel	12,000	12,000	Mum-267	IM-914
Ludlow Stone, Inc. 3244 S. Davis Rd. Ludlow Falls, OH 45339 513-698-3043 Lloyd B. Fry, pres.	Ludlow Stone, Inc. (66)	Miami	limestone	221,519	361,078	Mi-502	IM-414
Ludowici-Celadon Co. P.O. Box 69 New Lexington, OH 43764 614-342-1995 Edward Ryser, pres.	Donnelly Pit (46)	Perry	shale	[38]		Py-212	IM-58
MacRitchie Materials, Inc. P.O. Box 90 West Millgrove, OH 43467 419-288-2790 Donald B. MacRitchie, pres.	MacRitchie Materials, Inc. (130)	Wood	limestone	254,474	305,485	Wd-1	IM-548
Marshall Quarry, Inc. 11199 State Rte. 124 Hillsboro, OH 45133 513-466-2636 Ronald M. Main, pres.	Marshall Quarry, Inc. (43)	Highland	limestone	2,979	3,817	Hd-4	IM-406
Donald Martin Contracting 1875 Roxanna-New Burlington Rd. Waynesville, OH 45068 513-862-4182 Donald L. Martin, owner	Donald Martin Contracting (403)	Greene	sand & gravel	4,970	0	Ge-40	IM-923
Martin Farms, Inc. 2993 Woodsdale Rd. Trenton, OH 45067 513-988-6318 James E. Martin, pres.	Martin Farms, Inc. (38)	Butler	sand & gravel	[40]		Br-52	IM-814
Martin Marietta Chemicals Executive Plaza II Hunt Valley, MD 21030 301-667-0200 W. W. Appel, pres.	Woodville Quarry (102)	Sandusky	limestone	1,831,834	1,831,834	Sy-1	IM-537
Masons Sand & Gravel Co. 2385 Rathmell Rd. Columbus, OH 43207 614-491-3611 Gordon Masteller, pres.	Masons Sand & Gravel (100)	Franklin	sand & gravel	[40]		Fn-11	IM-234

[38]No sales or production.
[39]No mine number has been assigned by the Division of Mines.
[40]No report filed in 1987.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Massillon Washed Gravel Co. 6331 Blough Ave. SW P.O. Box 167 Navarre, OH 44662 216-879-2132 Thomas E. Thomas, pres.	Massillon Washed Gravel Co. (325)	Stark	sand & gravel	350,070	240,856	Sk-607	IM-102
Maumee Haulers, Inc. 8647 Nebraska Ave. Toledo, OH 43617 419-865-5013 Ike Parker, Jr., pres.	Nebraska Pit (193)	Lucas	sand & gravel	219,942	219,942	Ls-20	IM-888, IM-982
Maxville Quarries, Inc. 7957 State Rte. 668 S Logan, OH 43138 614-596-5221 W. E. Engle, pres.	Maxville Quarries, Inc. (89)	Perry	limestone	[41]		Py-235	IM-11, IM-515
McCarthy Stone Quarry 6326 County Rd. 61 Upper Sandusky, OH 43351 419-294-2611 Charles H. McCarthy, owner	McCarthy Stone Quarry (133)	Wyandot	limestone	104,755	104,755	Wt-3	IM-298
Mecco, Inc. 2504 S. Main St. Middletown, OH 45042 513-422-3651 David T. Morgan, pres.	Mecco, Inc. (39)	Butler	sand & gravel	64,050	64,050	Br-15	IM-316
Mechanicsburg Sand & Gravel, Inc. 25 Mill St. P.O. Box 18 Mechanicsburg, OH 43044 513-834-2606 John D. Cushman, pres.	Mechanicsburg Sand & Gravel, Inc. (50)	Champaign	sand & gravel	104,404	85,751	Cpn-22	IM-889
Meigs County Commissioners Rte. 2 Rocksprings Rd. Pomeroy, OH 45769 614-992-2911 Henry Wells, county commissioner	Meigs County Pit (211)	Meigs	sand & gravel	15,536	15,536	Ms-301	IM-619
Melvin Stone Co. 228 Melvin Rd. Wilmington, OH 45177 513-584-2486 Craig Beam, gen. mgr.	Melvin Stone Co. (17) Melvin Stone Co. (28) Limestone, Inc. (92)	Clinton Fayette Pickaway	limestone limestone limestone	627,421 155,197 186,114	627,421 155,197 151,511	Cln-1 Fe-1 Pky-4	IM-241 IM-831 IM-209
Mesenburg Bros., Inc. R.D. 1 Collins, OH 44826 419-668-5691 Peter J. Mesenburg, pres.	Mesenburg Bros., Inc. (86) Mesenburg Bros., Inc. (20)	Erie Huron	sand & gravel sandstone	7,360 89,977	7,360 89,977	Ee-24 Hrn-8	IM-593, IM-915 IM-268
Miami River Stone Co. 1556 Miami River Rd. Sidney, OH 45365 513-492-5412 Bradley Comer, gen. mgr.	Miami River Stone Co. (110) Miami River Stone Co. (311)	Shelby Shelby	limestone sand & gravel	259,698 3,798	272,430 0	Shy-6 Shy-17	IM-389 IM-389
Mickley Gravel Co. P.O. Box J Danville, OH 43014 614-599-7870 Paul Mickley, owner	Mickley Gravel Co. (162) (139)	Knox	sand & gravel limestone	1,858 [41]	0	Kx-5	IM-884
Middletown Sand & Gravel Co. 2100 S. Main St. P.O. Box 380 Middletown, OH 45042 513-422-3781 David Morgan, pres.	Middletown Sand & Gravel Co. (40)	Butler	sand & gravel	161,863	161,863	Br-1	IM-180
Miller Bros. Clay Works, Inc. Lock Box 162 Ottoville, OH 45876 419-453-3545 Kenneth A. Miller, pres.	Miller Bros. Clay Works, Inc. (48)	Putnam	clay	800	800	Pm-9	
Miller Bros. Gravel, Inc. 7900 S. Kessler-Frederick Rd. Tipp City, OH 45371 513-698-7204 Thomas O. Miller, pres.	Miller Bros. Gravel, Inc. (233)	Montgomery	sand & gravel	197,840	174,702	My-52	IM-348

[41]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
H. M. Miller Construction Co. 1225 Waterloo Rd. Mogadore, OH 44260 216-628-4811 J. C. Smith, pres.	Krumroy Pit (300)	Summit	sand & gravel	16,434	0	St-46	IM-557
Miller Sand & Gravel Co. State Rte. 82 Box 60 Windham, OH 44288 216-326-3157 Donald M. Miller, owner	Miller Sand & Gravel Co. (272)	Portage	sand & gravel	4,070	4,070	Pe-39	IM-174
Miller Sand Co. 5003 Bellevue-Castalia Rd. Castalia, OH 44824 419-684-7328 Todd C. Miller, owner	Miller Sand Co. (87)	Erie	sand & gravel	3,041	1,404	Ee-28	IM-601
Mohican Organic Products, Inc. Rte. 1, 47 Milligan Rd. Lucas, OH 44843 419-892-2212 Farley & Joyce Amos, owners	Mohican Pit (1)	Ashland	peat	[42]		Ald-13	
Mohican Sand & Gravel, Inc. P.O. Box 28 Perrysville, OH 44864 419-522-2521 Richard R. Stander, Sr., pres.	Mohican Sand & Gravel, Inc. (292)	Richland	sand & gravel	87,985	87,985	Rd-5	IM-674
Moore's Excavating Co. 2222 N. State Rte. 68 Urbana, OH 43078 513-653-6288 Ralph Moore, owner	Moore's Excavating Co. (51)	Champaign	sand & gravel	64,579	64,579	Cpn-20	IM-482
Morrow Gravel Co. 11641 Mosteller Rd. P.O. Box 41350 Cincinnati, OH 45241 513-771-0870 John C. Jurgensen, pres.	Morrow Gravel Co. (361)	Warren	sand & gravel	[43]		Wan-MG[44]	IM-837
Morton Thiokol, Inc. Morton Salt Division P.O. Box 428 Grand River, OH 44045-0428 216-354-9901 John J. Harkins, mgr.	Fairport Mine (2)	Lake	salt	1,087,012	992,581	Lke-6	
Morton Thiokol, Inc. Morton Salt Division 151 S. Industrial St. Rittman, OH 44270-1593 216-925-3015 Charles S. Locke, CEO	Morton Salt Well Field (5)	Wayne	salt	449,721	465,151	We-9129	
Muskingum River Gravel Co. P.O. Box 14 Lockbourne, OH 43137 614-453-0721 Larry Young, v. pres.	Plant #6 (101) Muskingum River Gravel Co. (247) Plant #1 (245) Plant #2 (367)	Franklin Muskingum Muskingum Washington	sand & gravel sand & gravel sand & gravel sand & gravel	[43] [43] [43] [43]		Fn-24 Mum-228 Mum-736 Wn-38	IM-266 IM-421 IM-804 IM-701
National Aggregate P.O. Box 12322 Columbus, OH 43212 614-224-9211 Daniel J. Furey, pres.	National Aggregate (46)	Carroll	sand & gravel	[43]		Cl-152	IM-641
National Lime & Stone Co. P.O. Box 120 Findlay, OH 45839-0120 419-422-4341 R. W. Kruse, v. pres.	Lima Plants (4) Lima Plants (5) Lima Plants (6) Buckland Plant (11) Wapakoneta Plant (24) Bucyrus Plant (18) Delaware Plant (21) Findlay Plant (35) Marion Plant (60) Carey Plant (134)	Allen Allen Allen Auglaize Auglaize Crawford Delaware Hancock Marion Wyandot	limestone limestone limestone limestone sand & gravel limestone limestone limestone limestone limestone	[45] 843,029 [45] 232,266 218,286 1,157,295 1,521,469 670,802 678,490 2,003,409	 843,000 250,000 217,000 1,154,000 1,421,000 612,000 528,000 1,704,000	An-2 An-3 An-11 Ae-10 Ae-30 Cd-1 Del-5 Hk-1 Mn-3 Wt-1	IM-540 IM-484 IM-541 IM-486 IM-404 IM-207 IM-483 IM-168 IM-405

[42]No sales or production.
[43]No report filed in 1987.
[44]No mine number has been assigned by the Division of Mines.
[45]All sales and production are reported under An-3.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Neer's Sand & Gravel 4859 Twp. Rd. 45 Bellefontaine, OH 43311 513-585-6733 Arden J. Neer, Sr., owner	Neer's Sand & Gravel (189)	Logan	sand & gravel	123,595	130,426	Lgn-6	IM-459
Neiheisel Sand & Gravel 912 Beeson Mill Rd. Leetonia, OH 44431 216-427-2824 Thomas L. Neiheisel, Sr., owner	Neiheisel Sand & Gravel (67) Neiheisel Sand & Gravel (196)	Columbiana Mahoning	sand & gravel sand & gravel	[46] 6,214	 6,214	Ca-600 Mg-NSG[47]	IM-100 IM-808
Nelson Sand & Gravel, Inc. P.O. Box 31 Kingsville, OH 44048 216-224-0198 Thomas H. Nelson, pres.	Nelson Sand & Gravel, Inc. (13) Nelson Sand & Gravel, Inc. (14)	Ashtabula Ashtabula	sand & gravel sand & gravel	20,000 [48]	0 	Asa-11 Asa-12	IM-160 IM-911
Newark Asphalt Co. P.O. Box 7 Alexandria, OH 43001 614-366-2302 Frank B. Murphy, pres.	Alexandria Pit (173)	Licking	sand & gravel	31,075	58,132	Lg-8[49]	IM-271
New Carlisle Sand & Gravel Co. 6090 S. Scarff Rd. New Carlisle, OH 45344 513-845-0696 Elizabeth Upton, owner	New Carlisle Sand & Gravel Co. (217)	Miami	sand & gravel	1,120	1,120	Mi-501	
New Miami Sand & Gravel, Inc. 151 Seven Mile Ave. New Miami, OH 45011 513-863-7676 James T. Schrimpf, pres.	New Miami Sand & Gravel, Inc. (42)	Butler	sand & gravel	55,336	55,336	Br-3	IM-719
Northern Ohio Materials, Inc. 35746 Lake Shore Blvd. Eastlake, OH 44094 216-946-8467 Joseph A. Began, mgr.	Northern Ohio Materials, Inc. (273) Northern Ohio Materials, Inc. (331)	Portage Summit	sand & gravel sand & gravel	286,968 1,426	260,074 0	Pe-85 St-41	IM-700 IM-113
Northmont Sand & Gravel Co. P.O. Box 185 Englewood, OH 45322 513-836-1998 Robert D. Eyre, pres.	Northmont Sand & Gravel Co. (235)	Montgomery	sand & gravel	114,787	114,787	My-49	IM-370
North Ridge Materials 3052 E. Center St. Box 599 North Kingsville, OH 44068 216-224-1009 Joseph E. Simak, pres.	North Ridge Materials (393)	Ashtabula	sand & gravel	14,430	8,913	Asa-16	IM-949
North Shore Stone Quarries, Inc. 72 Fernhill Ave. Columbus, OH 43228 614-878-3628 Clifford Hammond, pres.	North Shore Stone Quarries, Inc. (109)	Seneca	limestone	7,150	7,150	Sa-8	IM-313
Northwood Stone & Asphalt Co. 1558 County Rd. 105 Belle Center, OH 43310 513-464-3833 Don E. Mill, pres.	Northwood Stone & Asphalt Co. (51)	Logan	limestone	136,246	175,171	Lgn-2	IM-494
Nutter Bros. Coal Co., Inc. P.O. Box 190 New Lexington, OH 43766 614-394-2681 James P. Nutter, pres.	Nutter Bros. Coal Co., Inc. (47)	Perry	clay	43,225	43,225	Py-259	IM-80
Carl E. Oeder & Sons Sand & Gravel 3890 Turtlecreek Rd. Lebanon, OH 45036 513-494-1238 Carl E. Oeder, pres.	Carl E. E. Oeder & Sons Sand & Gravel (352)	Warren	sand & gravel	369,469	351,322	Wan-41[50]	IM-629
Ohio Asphaltic Limestone Corp. 8591 Mad River Rd. Hillsboro, OH 45133 513-364-2191 W. C. Mason, pres.	Ohio Asphaltic Limestone Corp. (42)	Highland	limestone	213,954	230,500	Hd-3	IM-253

[46]No sales or production.
[47]No mine number has been assigned by the Division of Mines.
[48]No report filed in 1987.
[49]This mine was operated 1st quarter 1987 by Alexandria Materials Co. and 2nd through 4th quarters by Newark Asphalt Co.
[50]See also Dravo Basic Materials Co., Inc.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Olen Corp. 1709 Amity Rd. Hilliard, OH 43026 614-878-8366 Toby McKee, pres.	Olen Corp. (102) Olen Corp. (161)	Franklin Knox	sand & gravel sand & gravel	623,330 138,331	623,330 138,331	Fn-43 Kx-16[51]	IM-188 IM-793
Oneida Sand & Gravel, Inc. 8000 Blade Rd. Malvern, OH 44644 216-343-6831 Louis H. Smitley, pres.	Oneida Sand & Gravel, Inc. (47)	Carroll	sand & gravel	47,610	42,680	Cl-204	IM-554
Orrville Tile & Flue Lining, Inc. 1800 S. Crownhill Rd. Box 318 Orrville, OH 44667 216-682-1936 Mark G. Bowling, pres.	Orrville Pit (72)	Wayne	clay	100	100	We-9	IM-512
Osborne Materials Co. Williams St. P.O. Box 248 Grand River, OH 44045-0248 216-357-5562 Harold T. Larned, pres.	Osborne Materials Co. (2)	Lake Erie	sand & gravel (dredged)	123,922	123,922		
Oster Sand & Gravel, Inc. 5947 Whipple Ave. NW North Canton, OH 44720 216-494-5472 Marlene K. Oster, pres.	Oster Sand & Gravel, Inc. (326) Oster Sand & Gravel, Inc. (342)	Stark Tuscarawas	sand & gravel sand & gravel	286,208 168,239	232,437 162,138	Sk-165 Ts-1852	IM-192, IM-781 IM-75
Owens Stone Co., Inc. 1274 Ostrander Rd. Ostrander, OH 43061 614-666-7555 Kenneth F. Manning, pres.	Owens Stone Co., Inc. (22)	Delaware	limestone	356,533	301,320	Del-3	IM-327
Partin Sand & Gravel 4252 Taylorsville Rd. Dayton, OH 45424 513-233-9501 Arthur C. Partin, owner	Partin Sand & Gravel (236)	Montgomery	sand & gravel	7,000	5,500	My-55	IM-571
R. H. Penick Co. 1504 Blue Jay Rd. Heath, OH 43056 614-323-3040 Raymond H. Penick, owner	R. H. Penick Co. (3)	Licking	salt	6,386	6,386	Lg-45	
Penry Stone Co. P.O. Box 176 Radnor, OH 43066 614-595-3473 Walter G. Penry, pres.	Penry Stone Co. (23) Penry Stone Co. (198)	Delaware Marion	limestone sand & gravel	[52] [52]		Del-2 Mn-4	IM-299 IM-290
Phillips Sand & Gravel U.S. Rte. 35 Box 187 Alpha, OH 45301 513-426-5461 George E. Phillips, pres.	Phillips Sand & Gravel (115)	Greene	sand & gravel	499,925	499,925	Ge-36	IM-305
Pifer Stone Co. P.O. Box 101 Williamstown, OH 45897 419-365-5078 William E. Pifer, owner	Pifer Stone Co. (36)	Hancock	limestone	12,880	13,100	Hk-4	IM-489
C. F. Poeppelman, Inc. 4755 N. State Rte. 721 Bradford, OH 45308 513-448-2613 James Poeppelman, pres.	C. F. Poeppelman, Inc. (67)	Miami	limestone	175,288	175,288	Mi-10	IM-335
Portage Lakes Sand & Gravel Co. 2800 N. Turkeyfoot Rd. Akron, OH 44319 216-644-2285 James V. Crano, pres.	Portage Lakes Sand & Gravel Co. (384)	Summit	sand & gravel	230,313	230,313	St-53	IM-874
Prairie Lane Sand & Gravel Co. 4401 Prairie Lane Rd. Wooster, OH 44691 216-262-6821 Ralph W. Miller, Jr., pres.	Prairie Lane Sand & Gravel Co. (372)	Wayne	sand & gravel	146,372	146,372	We-11	IM-547

[51]This mine was operated 1st quarter 1987 by Kokosing Materials, Inc., and 2nd through 4th quarters by Olen Corp.
[52]No report filed in 1987.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Price Sand & Gravel Div. of Price Asphalt & Paving Co. 115 Jefferson St. Norwalk, OH 44857-1994 419-668-1059 Robert C. Price, pres.	Price Sand & Gravel (157)	Huron	sand & gravel	100,799	100,799	Hrn-1	IM-550
Purdy Sand & Gravel Co. 14220 Parrott St. Ext. P.O. Box 667 Mt. Vernon, OH 43050 614-397-0000 J. R. Purdy, pres.	Purdy Sand & Gravel Co. (163)	Knox	sand & gravel	72,515	108,135	Kx-3	IM-300
Puskarich Limestone Co. 40580 Cadiz-Piedmont Rd. Cadiz, OH 43907 614-942-4656 Nick J. Puskarich, pres.	Puskarich Limestone Co. (15)	Carroll	limestone	70,325	77,140	Cl-183	IM-7
Putnam Stone Co. R.R. 1, 7053 Road M Ottawa, OH 45875-9754 419-523-6004 J. E. Shroyer, pres.	Putnam Stone Co. (98)	Putnam	limestone	195,371	195,525	Pm-2	IM-570
Quality Ready Mix, Inc. R.R. 5 Wapakoneta, OH 45895 419-738-6010 Robert E. Hirschfeld, pres.	Quality Ready Mix, Inc. (25)	Auglaize	sand & gravel	51,433	39,758	Ae-16	IM-595
Queen City Gravel Co. 5050 Orchard St. Cincinnati, OH 45212 513-531-6214 Paul T. Rebel, pres.	Queen City Gravel Co. (138)	Hamilton	sand & gravel	[53]		Hmn-16	IM-272
Rack Sand, Inc. 5175 Este Ave. Cincinnati, OH 45232 513-242-5052 Roy Schweitzer, owner	Rack Sand, Inc. (139)	Hamilton	sand & gravel	146,851	146,851	Hmn-10	IM-226
Ramsier Sand & Gravel 113 Howe St. Lodi, OH 44254 216-948-1749 Larry L. Ramsier, owner	Ramsier Sand & Gravel (205)	Medina	sand & gravel	[53]		Ma-12	IM-516
Rialto Farms 1690 Owens Rd. W Marion, OH 43302 614-387-6754 Dennis E. Mattix, partner	Rialto Sand & Gravel (199)	Marion	sand & gravel	[53]		Mn-17	IM-460
Richards & Son, Inc. P.O. Box 232 Pomeroy, OH 45769 614-247-2311 Dennis R. Taylor, mgr.	Richards & Son, Inc. (212)	Meigs	sand & gravel	533,287	533,287	Ms-298	IM-32
Ridge Township Quarry R.R. 1 Box 263 Van Wert, OH 45891 419-238-2533 Jenny Lautenschleger, foreman	Ridge Township Quarry (122)	Van Wert	limestone	73,732	65,806	Vt-7	IM-642
Ries Sand & Gravel 169 State Rte. 95 Jeromesville, OH 44840 419-368-7833 Robert Ries, owner	Ries Sand & Gravel (6)	Ashland	sand & gravel	10,424	10,520	Ald-9	IM-745
Riverside Sand & Gravel Co., Inc. P.O. Box 324 Tallmadge, OH 44278-0324 216-673-2021 Evelyn N. Acken, pres.	Riverside Sand & Gravel Co., Inc. (333)	Summit	sand & gravel	94,781	84,047	St-24	IM-239
L. G. Rockhold & Sons, Inc. 28541 State Rte. 739 West Mansfield, OH 43358 513-358-2224 Howard E. Rockhold, pres.	L. G. Rockhold & Sons, Inc. (119)	Union	limestone	119,712	115,250	Un-1	IM-208

[53]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Rockport Sand & Gravel Co., Inc. 9215 Rock St. Columbus Grove, OH 45830 419-358-4207 Shannon C. Reese, pres.	Rockport Sand & Gravel Co., Inc. (1) Rockport Sand & Gravel Co., Inc. (2) Rockport Sand & Gravel Co., Inc. (178)	Allen Allen Licking	sand & gravel sand & gravel sand & gravel	7,194 79 [54]	7,194 79	An-14 An-15 Lg-35	IM-523 IM-721 IM-734, IM-803
Rogers Group, Inc. dba Sandusky Crushed Stone Co. P.O. Box 527 Sandusky, OH 44870 419-625-8493 Richard Rechter, pres.	Sandusky Crushed Stone Co. (25)	Erie	limestone	2,425,807	2,513,525	Ee-11	IM-263
Romany Ceramics, Inc. Div. of U.S. Ceramic Tile Co. 10233 Sandyville Rd. SE East Sparta, OH 44626 216-866-5531 Robert E. Schlemmer, pres.	Romany Ceramics, Inc. (55) (55)	Stark	clay shale	477 1,910	477 1,910	Sk-170	IM-365
Rubber City Sand & Gravel Co. P.O. Box 106 Uniontown, OH 44685 216-699-3311 William H. Leach, Sr., owner	Rubber City Sand & Gravel Co. (334)	Summit	sand & gravel	2,187	0	St-9	IM-167
Rupp Construction, Inc. 18228 Fulton Rd. Marshallville, OH 44645 216-855-2781 J. P. Radabaugh, pres.	Rupp Construction, Inc. (373)	Wayne	sand & gravel	260,800	130,700	We-7	IM-471
S & S Aggregate P.O. Box 608 Zanesville, OH 43702-0608 614-543-0721 Larry Young, v. pres.	S & S Aggregate (152) S & S Aggregate (281) S & S Aggregate (282) S & S Aggregate (337) S & S Aggregate (338) S & S Aggregate (336)	Hocking Portage Portage Summit Summit Summit	sand & gravel sand & gravel sand & gravel sand & gravel sand & gravel sand & gravel	[55] [55] [55] [55] [55] [55]		Hg-301 Pe-59 Pe-67 St-29 St-32 St-44	IM-458 IM-210 IM-202 IM-203 IM-178
SME Bessemer Cement, Inc. P.O. Box 5250 Poland, OH 44515 216-536-6275 Larry Ousky, pres.	SME Limestone (58) (33) Quarry #8 (57) (34)	Mahoning Mahoning	limestone clay limestone shale	[54] [54] 1,100,171 90,728	1,685,045 91,128	Mg-507 Mg-608	IM-8 IM-4
SME Cement, Inc. 8282 Middlebranch Rd. P.O. Box 234 Middlebranch, OH 44652 216-499-9100 Larry Ousky, pres.	#2 Pit (54) (54) #3 Pit (115)	Stark Stark	clay shale limestone	[54] [54] [54]		Sk-204 Sk-222	IM-726 IM-819
Salt Creek Materials, Inc. 880 Spry Rd. Zanesville, OH 43701 614-872-3860 Charles O. Lighthizer, owner	Salt Creek Materials, Inc. (248) Salt Creek Materials, Inc. (249)	Muskingum Muskingum	sand & gravel sand & gravel	2,857 5,751	8,290 0	Mum-216 Mum-220	IM-689 IM-623
Samco, Inc. 10217 State Rte. 534 N Middlefield, OH 44062 216-272-5158 J. Jim Holmes, pres.	Springbrook (340)	Ashtabula, Trumbull	sand & gravel	319,839	319,839	Tl-12[56]	IM-131
Sandkuhl Tile Co. 05536 Kossuth-Amanda Rd. Spencerville, OH 45887 419-647-4131 Leslie E. Sandkuhl, pres.	Sandkuhl Tile Co. (2)	Auglaize	clay	4,255	4,422	Ae-7	
Earl H. Schilling & Sons, Inc. Rte. 2 Box 326 Ironton, OH 45638 614-532-8463 Earl H. Schilling, pres.	Earl H. Schilling & Sons, Inc. (305)	Scioto	sand & gravel	[54]		So-78	
Schloss Paving Co. 13700 McCracken Rd. Cleveland, OH 44125 216-587-4900 Raymond E. Schloss, Sr., pres.	Schloss Paving Co. (274)	Portage	sand & gravel	71,616	71,616	Pe-60	IM-78

[54]No sales or production.
[55]No report filed in 1987.
[56]All sales and production are from Trumbull County.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Schrader Sand & Gravel 293 Tile Mill Rd. Beaver, OH 45613 614-226-1902 Melvin Schrader, owner	Schrader Sand & Gravel (45)	Pike	sandstone	[57]		Pke-31	IM-835
Scioto Valley Resources Box 760 Lucasville, OH 45648 513-393-4211 John B. Patton, pres.	Scioto Valley Resources Division (395)	Scioto	sand & gravel	156,817	183,180	So-100	IM-760
Seaway Sand & Stone, Inc. 2190 Whitehouse-Spencer Rd. Rte. 4 Box 289 Swanton, OH 43558 419-865-5751 Mack S. Moon, pres.	Seaway Sand & Stone, Inc. (195)	Lucas	sand & gravel	146,243	146,243	Ls-13	IM-492
Seville Sand & Gravel, Inc. 8215 Seville Rd. Seville, OH 44273 216-948-1812 George Cross, pres.	Seville Sand & Gravel, Inc. (207) Seville Sand & Gravel, Inc. (206)	Medina Medina	sand & gravel sand & gravel	83,293 187,798	83,293 187,798	Ma-9 Ma-22	IM-424, IM-425 IM-650, IM-651
R. W. Sidley, Inc. 615 W. Main St. Conneaut, OH 44030 216-298-3232 Ray Martin, v. pres.	Kingsville (15) Walrath Pit (16)	Ashtabula Ashtabula	sand & gravel sand & gravel	21,000 [57]	25,000	Asa-15 Asa-RWS[58]	IM-783 IM-219, IM-233
R. W. Sidley, Inc. 7123 Madison Rd. Thompson, OH 44086 216-298-3232 Robert C. Sidley, pres.	Thompson Pit (18) Painesville Pit (166)	Geauga Lake	sandstone sand & gravel	173,000 54,000	265,000 68,000	Gea-1 Lke-7	IM-163 IM-162
Sidney Sand & Gravel Co. P.O. Box 379 Sidney, OH 45365 513-492-3125 Patrick H. Milligan, owner	Milligan & Milligan-Washington Twp. Pit (312) Rock Run Quarry (111)	Shelby Shelby	sand & gravel limestone	110,619 40,036	110,619 25,832	Shy-13 Shy-16	IM-412 IM-411
Sidwell Bros., Inc. 4620 Limestone Valley Rd. Zanesville, OH 43701 614-849-2392 Dale R. Sidwell, pres.	Sidwell Quarry (78)	Muskingum	limestone	359,827	359,827	Mum-104	IM-277
Silchuk Gravel Co. 2470 Wall Rd. Rittman, OH 44270 216-336-8796 Junior F. Silchuk, owner	Silchuk Gravel Co. (208)	Medina	sand & gravel	300	300	Ma-16	
Joe Simak & Sons Trucking, Inc. 3052 E. Center St. Box 599 North Kingsville, OH 44068 216-224-1992 Joseph E. Simak, pres.	Penn Line Pit (394)	Ashtabula	sand & gravel	[57]		Asa-S[58]	IM-853
Simanton Sand Co. 131 Sycamore Dr. Norwalk, OH 44857 419-668-6586 Harlon K. Jennings, pres.	Simanton Sand Co. (7)	Ashland	sand & gravel	15,837	15,837	Ald-11	IM-543
Small's Sand & Gravel, Inc. P.O. Box 617 Gambier, OH 43022 614-427-4096 William Small, pres.	Small's Sand & Gravel, Inc. (164) Small's Sand & Gravel, Inc. (165) Small's Sand & Gravel, Inc. (408)	Knox Knox Knox	sand & gravel sand & gravel sand & gravel	49,796 235,269 2,309	46,327 297,851 202,809	Kx-8 Kx-15 Kx-17	IM-267 IM-967 IM-968
Sober Sand & Gravel Co. 2898 Tallmadge Rd. Ravenna, OH 44266 216-325-7013 Waldo A. Sober, pres.	Sober Sand & Gravel Co. (275)	Portage	sand & gravel	160	0	Pe-18	IM-193
Soehnlen Bros. Sand & Gravel Co. Rte. 1 Beach City, OH 44608 216-756-2244 Francis L. & Nicholas S. Soehnlen, partners	Soehnlen Bros. Sand & Gravel Co. (343)	Tuscarawas	sand & gravel	53,098	121,000	Ts-1826	IM-88

[57]No sales or production.
[58]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Solon Excavators Sand & Gravel, Inc. 10925 Mantua Center Rd. P.O. Box Q Mantua, OH 44255 216-274-8241 Howard Sargent, pres.	Solon Excavators Sand & Gravel, Inc. (276)	Portage	sand & gravel	322,189	322,189	Pe-36	IM-90
Southern Ohio Aggregates 11641 Mosteller Rd. Cincinnati, OH 43113 513-771-0820 John C. Jurgensen, pres.	Southern Ohio Aggregates (284)	Preble	sand & gravel	[59]		Pre-7	IM-306
Southern Silica, Inc. P.O. Box 22 Richmond Dale, OH 45673 614-884-4721 George W. Cannon, Jr., pres.	Southern Silica, Inc. (34)	Ross	sandstone	200,711	200,711	Rs-16	IM-172
Southwestern Portland Cement Co. Eastern Division 506 E. Xenia Rd. P.O. Box 191 Fairborn, OH 45324 513-878-8651 Craig Leibsle, pres.	Southwestern Portland Cement Co. (33) Southwestern Portland Cement Co. (10) Southwestern Portland Cement Co. (34) Southwestern Portland Cement Co. (72)	Clark, Greene Greene Greene Montgomery	limestone clay limestone limestone	785,122 196,107 [61] 293,322	785,122 196,107 293,322	Ge-1[60] Ge-8 Ge-9 My-58	IM-393 IM-364 IM-364 IM-330
Sphagnum Moss Peat Farm 9797 Thompson Rd. West Liberty, OH 43357 513-653-7337 Herman S. Thompson, owner	Sphagnum Moss Peat Farm (2)	Champaign	peat	18,761	21,667	Cpn-9	
Spring Creek Corp. 4723 Hardin-Wapak Rd. Sidney, OH 45365 513-492-9697 Nelson E. Barhorst, pres.	Pence Deposit (314) River Quarry (112) Jones Deposit (315)	Shelby Shelby Shelby	sand & gravel limestone sand & gravel	[61] 181,344 580,600	 181,344 580,600	Shy-11 Shy-15 Shy-18	IM-743 IM-387 IM-388
Spring Industries, Inc. P.O. Box 507 New Philadelphia, OH 44663 216-339-3585 Glenn Straub, pres.	Newcomerstown Plant (72) Midvale Pit (344) County Line Plant (345)	Coshocton Tuscarawas Tuscarawas	sand & gravel sand & gravel sand & gravel	25,681 240,553 3,456	38,025 383,775 21,810	Cn-624 Ts-1771 Ts-1788	IM-243 IM-77 IM-73
Spring Valley Investments, Inc. 2800 N. Turkeyfoot Rd. Akron, OH 44319 216-644-2285 James V. Crano, pres.	Spring Valley Investments, Inc. (335)	Summit	sand & gravel	[61]		St-26	IM-803
Springfield Sand & Gravel Co. 4301 S. Charleston Pike Springfield, OH 45502 513-325-7386 Don E. Mill, pres.	Springfield Sand & Gravel Co. (58)	Clark	sand & gravel	503,058	445,821	Ck-25	IM-358
Standard Slag Co. 1200 Stambaugh Bldg. P.O. Box 1378 Youngstown, OH 44501 216-743-3151 R. T. Beeghly, pres.	Adams (2) Marblehead (84) Cutlip (255) Shalersville (277) Shalersville Portable (278) Haverhill (306)	Adams Ottawa Pike Portage Portage Scioto	limestone limestone sand & gravel sand & gravel sand & gravel sand & gravel	260,659 1,452,655 238,533 1,067,532 [61] 286,165	297,059 1,583,317 245,235 874,856 293,962	Ads-6 Oa-7 Pke-24 Pe-68 Pe-SS1[62] So-79	IM-659 IM-440 IM-222 IM-143, IM-687 IM-660 IM-221
Steetley Resources, Inc. Main St. Woodville, OH 43469 419-849-2321 Ian McGregor, pres.	Ohio Lime Co. (104) Ohio Lime Co. (105)	Sandusky Sandusky	limestone limestone	461,769 904,624	386,475 684,570	Sy-3 Sy-8	IM-282 IM-249
Steetley Resources, Inc. 3964 County Rd. 41 Millersville, OH 43435 419-638-2511 Ian McGregor, pres.	Ohio Lime Co. (103)	Sandusky	limestone	633,274	678,809	Sy-4	IM-381
Stewart & Reichman, Inc. Rte. 1 P.O. Box 64 Gnadenhutten, OH 44629 614-922-0050 Donald P. Brown, pres.	Stewart & Reichman, Inc. (346)	Tuscarawas	sand & gravel	26,678	26,678	Ts-111	IM-55

[59]No report filed in 1987.
[60]All sales and production are from Greene County.
[61]No sales or production.
[62]No mine number has been assigned by the Division of Mines.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Stocker Sand & Gravel Co. P.O. Box 176 Gnadenhutten, OH 44629 614-254-4635 William E. Stocker, pres.	Stocker Sand & Gravel Co. (347)	Tuscarawas	sand & gravel	384,592	384,592	Ts-69	IM-51
	Stocker Sand & Gravel Co. (348)	Tuscarawas	sand & gravel	231,245	231,245	Ts-125	IM-50
Stoneco 221 Allen St. P.O. Box 29A Maumee, OH 43537 419-893-8731 J. T. Kirkby, pres.	Maumee Quarry (54)	Lucas	limestone	795,387	768,669	Ls-2	IM-503
	Rocky Ridge (83)	Ottawa	limestone	173,505	190,917	Oa-14	IM-320
	Auglaize Quarry (88)	Paulding	limestone	357,632	396,405	Pg-2	IM-481
	Scott Quarry (121)	Van Wert	limestone	308,448	303,485	Vt-3	IM-495
	South Montpelier (375)	Williams	sand & gravel	321,446	275,988	Ws-6	IM-497
	North Montpelier (376)	Williams	sand & gravel	[63]		Ws-9	IM-498
	Lime City Quarry (131)	Wood	limestone	511,943	564,400	Wd-6	IM-480
	Portage Quarry (132)	Wood	limestone	311,849	271,162	Wd-11	IM-475
Stone Creek Brick Co. P.O. Box 116 Stone Creek, OH 43840 216-339-5511 A. C. Marsh, Jr., pres.	Stone Creek Brick Co. Clay Mine (67)	Tuscarawas	clay	56,021	56,021	Ts-1557	IM-52
	Stone Creek Brick Co. Shale Mine (67)	Tuscarawas	shale	6,924	6,924	Ts-1558	IM-52
Stone Products, Inc. 4650 Southway St. SW P.O. Box 6412 Canton, OH 44706 216-478-2151 W. Mark Sterling, pres.	Stone Products, Inc. (317)	Stark	sand & gravel	2,429	0	Sk-190	IM-839
Suever Stone Co., Inc. Bloomlock Rd. P.O. Box 10 Delphos, OH 45833 419-692-9796 Carl Suever, pres.	Suever Stone Co., Inc. (7)	Allen	limestone	81,801	71,051	An-4	IM-491
	Delphos Plant (123)	Van Wert	limestone	132,609	146,696	Vt-1	IM-500
Sugarcreek Clay & Limestone, Inc. Box 402 Sugarcreek, OH 44681 216-852-4440 Daniel O. Miller, pres.	Sugarcreek Clay & Limestone, Inc. (118)	Tuscarawas	limestone	52,925	60,755	Ts-1928	IM-98
	Sugarcreek Clay & Limestone, Inc. (69)		clay	[63]			
	(69)		shale	[63]			
Summitville Tiles, Inc. Summitville, OH 43962 216-223-1511 Peter C. Johnson, pres.	Summitville Tiles, Inc. (5)	Columbiana	shale	51,995	51,995	Ca-205	IM-74
Tarbox-McCall Stone Co. Div. of Hancock Ready Mix, Inc. 852 Western Ave. Findlay, OH 45840 419-422-1912 Kenneth R. Pfirsch, pres.	Tarbox-McCall Stone Co. (37)	Hancock	limestone	218,685	236,749	Hk-2	IM-439
Taylor Stone Co., Inc. P.O. Box 186 McDermott, OH 45652 614-259-2361 William A. McKinney, pres.	Taylor Quarry (35)	Scioto	sandstone	[63]		So-47	IM-251
Teague Gravel Co., Inc. 10924 Kinsman Rd. Newbury, OH 44065 216-564-5671 Donald Teague, pres.	Teague Gravel Pit (109)	Geauga	sand & gravel	79,037	74,033	Gea-35	IM-321
Terra Vista Sand & Gravel Co. 23850 Commerce Park Cleveland, OH 44122 216-464-0903 Adrian DeFranco, v. pres.	Terra Vista Sand & Gravel Co. (280)	Portage	sand & gravel	[63]		Pe-64	IM-229
Thompson Bros. Mining Co. 3379 E. Garfield Rd. P.O. Box 57 New Springfield, OH 44443 216-549-3979 J. E. Thompson, owner	Thompson Bros. Mining Co. (35)	Mahoning	clay	[63]		Mg-588	D-0374
Three Locks Construction Co. 11 E. Second St. P.O. Box 88 Chillicothe, OH 45601 614-773-3100 Franklin B. Conaway, pres.	N-3 (293)	Ross	sand & gravel	92,746	92,746	Rs-19	IM-620

[63]No sales or production.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Three Rivers Sand & Gravel, Inc. 400 Cooper Ave. Cleves, OH 45002 513-941-5040 Richard W. Richter, pres.	Three Rivers Sand & Gravel, Inc. (141)	Hamilton	sand & gravel	30,742	21,001	Hmn-28	IM-353
Ticon Corp. 10328 N. Hardin Rd. Piqua, OH 45356 513-698-3043 Lloyd B. Fry, pres.	Ticon Corp. (390)	Miami	sand & gravel	[64]		Mi-T[65]	IM-696
Tipp Stone, Inc. P.O. Box 367 Troy, OH 45373 513-890-4051 T. L. Eidemiller, pres.	Tipp Stone, Inc. (238)	Montgomery	sand & gravel	[66]		My-61	IM-468
Towne Square Products 156 E. Broadway Westerville, OH 43081 614-882-6990 Suzanne Stilson Edgar, pres.	Towne Square Products (41)	Noble	shale	1,310	1,310	Ne-66	IM-664
Tri County Limestone Co. 4664 Hardin-Marion Rd. N Kenton, OH 43326 419-675-7127 Norman Cochran, pres.	Tri County Limestone Co. (61)	Marion	limestone	140,652	140,652	Mn-1	IM-250
Tri-State Asphalt Productions 44 Sixteenth St. Wheeling, WV 26003 304-233-1110 Glenn Straub, pres.	Tri-State Asphalt Productions (26)	Belmont	sand & gravel	666,283	864,888	Bt-74	IM-288
Trout Sand & Gravel Co. Rte. 4 Marietta, OH 45750 614-373-7471 Henry C. Trout, Jr., owner	Trout Sand & Gravel Co. (369)	Washington	sand & gravel	61,040	60,640	Wn-510	IM-25
Troy Gravel Co. 135 E. Main St. P.O. Box 440 Tipp City, OH 45371 513-667-4431 James Ernst, pres.	Troy Gravel Co. (219)	Miami	sand & gravel	359,683	396,273	Mi-3	IM-462
USG Industries, Inc. 21880 W. State Rte. 163 Genoa, OH 43430-0158 419-855-8336 Paul F. Gnepper, supt.	USG Industries, Inc. (85)	Ottawa	limestone	128,439	0	Oa-1[67]	IM-292
U.S. Gypsum Co. 21880 W. State Rte. 163 Genoa, OH 43430-0158 419-855-8336 Paul F. Gnepper, supt.	U.S. Gypsum Co. (85)	Ottawa	limestone	187,461	251,719	Oa-1[67]	IM-292
U.S. Silica Co. P.O. Box 100 Rockwood, MI 48173 313-379-9672 Richard E. Goodell, pres.	Coxey Works (42)	Tuscarawas	sandstone	29,222	29,222	Ts-1660	IM-68
Union Aggregates Co. 8328 Watkins Rd. P.O. Box 178 Ostrander, OH 43061 614-666-2013 Don Mill, pres.	Prospect Sand & Gravel Plant (200) Green Camp Gravel Plant (201) Union Limestone Plant (120)	Marion Marion Union	sand & gravel sand & gravel limestone	30,141 [64] 685,374	27,743 685,374	Mn-10 Mn-12 Un-2	IM-196 IM-197 IM-236
Union Slag Corp. Rte. 4 Marietta, OH 45750 614-373-5436 Josephine Hune, owner	Plant #3 (370) Plant #2 (371)	Washington Washington	sand & gravel sand & gravel	40,694 42,658	33,558 62,195	Wn-43 Wn-44	IM-61 IM-63
Valley Gravel Co. 135 E. Main St. P.O. Box 440 Tipp City, OH 45371 513-667-4431 James Ernst, pres.	Valley Gravel Co. (220)	Miami	sand & gravel	129,186	238,487	Mi-8	IM-355

[64]No sales or production.
[65]No mine number has been assigned by the Division of Mines.
[66]No report filed in 1987.
[67]This mine was operated 1st and 2nd quarters 1987 by USG Industries, Inc., and 3rd and 4th quarters by U.S. Gypsum Co.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Van Wey Sand & Gravel, Inc. 6824 Mt. Vernon Rd. NE Rte. 2 Newark, OH 43055 614-745-5965 Richard L. Van Wey, pres.	Van Wey Sand & Gravel, Inc. (179)	Licking	sand & gravel	353,376	318,950	Lg-10	IM-217
Wagner Quarries Co. 4203 Milan Rd. Sandusky, OH 44870 419-625-8141 Stephen C. Lochner, pres.	Wagner Quarries Co. (26)	Erie	limestone	1,309,598	1,312,937	Ee-1	IM-310
Waller Bros. Stone Co. P.O. Box 157 McDermott, OH 45652 614-259-2356 L. M. Shope, v. pres.	Inskeep Quarry (36) Crabtree Quarry (37) Miller Quarry (38)	Scioto Scioto Scioto	sandstone sandstone sandstone	4,264 12,188 [68]	4,264 12,188	So-48 So-76 So-82	IM-140 IM-141 IM-158
Walter's Gravel 11302 National Rd. SE Thornville, OH 43076 614-323-0783 Viva W. Fenice, owner	Walter's Gravel (180)	Licking	sand & gravel	[68]		Lg-15	
Waterloo Coal Co. P.O. Box 177 Oak Hill, OH 45656 614-682-7788 Harold Bowman, pres.	Zoar (47) (23)	Jackson	limestone clay	516,677 33,334	516,677 33,334	Jkn-367	IM-774, D-0273, D-0286, D-0594
Watson Gravel, Inc. 2728 Hamilton-Cleves Rd. P.O. Box 277 Ross, OH 45061 513-863-0070 Ronald E. Watson, pres.	Watson Pit (44) Harrison Pit (142) Mason Pit (363)	Butler Hamilton Warren	sand & gravel sand & gravel sand & gravel	498,790 678,368 337,669	498,790 678,368 337,669	Br-47 Hmn-60 Wan-10	IM-111 IM-761 IM-465
Weaver's Peat Co. c/o Weaver's Lawn & Garden Products, Inc. P.O. Box 333 Bowling Green, OH 43402-0333 419-352-8429 Alan Weaver, asst. v. pres.	Weaver's Peat Co. (3)	Logan	peat	[68]		Lgn-33	
Weber Sand & Gravel, Inc. R.D. 1 Edgerton, OH 43517 419-636-7920 Thomas G. Weber, pres.	Weber Sand & Gravel, Inc. (377)	Defiance, Williams	sand & gravel	189,631	189,631	Ws-11[69]	IM-509, IM-661
Weidle Sand & Gravel, Inc. P.O. Box 247 Germantown, OH 45327 513-855-2228 Ronal L. Weidle, Sr., pres.	Weidle Sand & Gravel, Inc. (41) Weidle Sand & Gravel, Inc. (239)	Butler Montgomery	sand & gravel sand & gravel	62,540 100,580	62,540 100,580	Br-6 My-41	IM-177 IM-360
Welch Sand & Gravel, Inc. 10217 Columbia St. Harrison, OH 45030-9751 513-353-3220 Charles H. Welch, pres.	Schlichter Pit (45) Fernald Pit (143) East Miami Pit (144)	Butler Hamilton Hamilton	sand & gravel sand & gravel sand & gravel	210,421 [68] 548,732	210,421 548,732	Br-38 Hmn-42 Hmn-48	IM-218 IM-823 IM-220
Western Asphalt, Inc. dba Rockford Stone Co. 3491 U.S. Rte. 33 Rockford, OH 45882 419-363-3392 R. Steven Hennessee, pres.	Rockford Stone Co. (63)	Mercer	limestone	46,882	30,820	Mr-2	IM-430
White Bros. Sand, Inc. 1845 Collingwood Blvd. P.O. Box 714 Toledo, OH 43695 419-243-2121 Ralph K. Kuhlman, pres.	White Bros. Sand, Inc. (3)	Maumee Bay, Maumee River	sand & gravel (dredged)	170,574	170,574		
Whitewater Aggregates, Inc. 10431 Campbell Rd. Harrison, OH 45030 513-761-7800 Elster Varney, Jr., v. pres., operations	Whitewater Aggregates, Inc. (407)	Hamilton	sand & gravel	407,470	386,470	Hmn-69	IM-969

[68]No sales or production.
[69]All sales and production are from Williams County.

1987 OHIO ALPHABETICAL DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS—Continued

Name, address, telephone number, and president/owner/manager of company	Name of mine (and map location number)	County	Commodity	1987 sales (tons)	1987 production (tons)	State mine number	Division of Reclamation permit number
Dennis Winzeler Rte. 4 Box 4 Bryan, OH 43506 419-636-4285 Dennis & Polly Winzeler, owners	Dennis Winzeler (378)	Williams	sand & gravel	[70]		Ws-14	IM-614
John Wise Gravel Co. 8535 W. Klinger Rd. Covington, OH 45318 513-473-3246 John A. Wise, owner	John Wise Gravel Co. (221)	Miami	sand & gravel	6,071	6,071	Mi-9	IM-408
Woodville Concrete Corp. 7131 W. Fenner Rd. Ludlow Falls, OH 45339 513-698-4156 Dorothy Strohm, pres.	Woodville Concrete Corp. (222)	Miami	sand & gravel	9,386	5,303	Mi-4[71]	IM-472
Wright Sand 3632 S. State Rte. 231 Tiffin, OH 44883 419-447-5346 Paul J. Wright, owner	Wright Sand (307)	Seneca	sand & gravel	8,158	4,570	Sa-11	IM-561
Wyandot Dolomite, Inc. P.O. Box 126 Carey, OH 43316-0126 419-396-7641 Harold P. Wolfe, pres.	Wyandot Dolomite, Inc. (135)	Wyandot	limestone	1,033,510	1,433,185	Wt-8	IM-273
Wysong Gravel Co. 5040 Wolfe Creek Pike P.O. Box 5 Dayton, OH 45426-0005 513-962-2559 Gerald E. Wysong, pres.	Camden Plant (285) West Alexandria Plant (286)	Preble Preble	sand & gravel sand & gravel	88,781 136,681	88,781 136,681	Pre-4 Pre-6	IM-477 IM-478
Wysong Stone Co. 5897 State Rte. 503 N Lewisburg, OH 45338 513-962-2559 Gerald E. Wysong, pres.	Wysong Stone Co. (95)	Preble	limestone	59,043	59,043	Pre-5	IM-447
X L Sand & Gravel P.O. Box 157 Negley, OH 44441 216-426-9876 Robert Lansberry, pres.	X L Sand & Gravel (68)	Columbiana	sand & gravel	[72]		Ca-881	IM-611
Xenia Sand, Gravel, & Asphalt Co. Dayton-Xenia Rd. P.O. Box 10 Xenia, OH 45385 513-372-2736 John D. Burnett, owner	Xenia Sand, Gravel, & Asphalt Co. (117)	Greene	sand & gravel	23,800	20,500	Ge-10	IM-518
York Road Gravel Co. 8819 York Rd. SW Pataskala, OH 43062 614-927-1524 Jack & Jean Klima, owners	York Road Gravel Co. (181)	Licking	sand & gravel	53,114	53,114	Lg-38	IM-695
William H. Young 6961 Springfield-Xenia Rd. Yellow Springs, OH 45387 513-325-9571 William & Rita Young, partners	William H. Young (385)	Clark	sand & gravel	[72]		Ck-501	IM-340
Young's Sand & Gravel Co. 689 State Rte. 39 W P.O. Box 117 Loudonville, OH 44842 419-994-3040 Milton, Marion, & Delmar Young, partners	Young's Sand & Gravel Co. (8)	Ashland	sand & gravel	262,419	160,469	Ald-7	IM-392
Zoar Mining Co. P.O. Box 550 Zoar, OH 44697 216-874-2434 Peter C. Johnson, pres.	Zoar Mining Co. (70) (70) Zoar Mining Co. (71)	Tuscarawas Tuscarawas	clay shale clay	5,027 5,954 45,452	5,027 5,954 45,452	Ts-538 Ts-540	IM-27 IM-28
Zollinger Sand & Gravel Co. 11899 Easton Rd. Rittman, OH 44270 216-855-2464 Carl Zollinger, pres.	Zollinger Sand & Gravel Co. (374)	Wayne	sand & gravel	316,526	321,000	We-15	IM-398

[70]No sales or production.
[71]This mine was operated 1st and 2nd quarters 1987 by Woodville Concrete Corp. and 3rd and 4th quarters by Fenner Sand & Gravel.
[72]No report filed in 1987.

1987 OHIO DIRECTORY OF LIMESTONE/DOLOMITE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of mine or quarry	Township	Geological unit	Type and principal use	State mine number
Adams	Davon, Inc.	Plum Run Stone Division	Meigs	Peebles, Greenfield, & Tymochtee Dolomites (Silurian)	crushed stone—riprap, metallurgical stone, stone for portland cement concrete, building, road base, resurfacing stone, railroad ballast; rock dust, industrial uses; aglime	Ads-1
	Standard Slag Co.	Adams	Franklin	Silurian	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone	Ads-6
Allen	Bluffton Stone Co.	Bluffton Stone Co.	Richland	Tymochtee Dolomite (Silurian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, construction; aglime	An-1
	National Lime & Stone Co.	Lima Plants	Bath	Silurian	crushed stone—riprap, building, road base, resurfacing stone, railroad ballast; aglime	An-3[1]
	Suever Stone Co., Inc.	Suever Stone Co., Inc.	Spencer	Tymochtee Dolomite (Silurian)	crushed stone—stone for bituminous concrete, building, road base, resurfacing stone; aglime	An-4
Auglaize	Con-Ag, Inc.	Con-Ag, Inc.	Noble	Cedarville Dolomite (Silurian)	crushed stone—riprap, building, road base, resurfacing stone	Ae-31
	National Lime & Stone Co.	Buckland Plant	Moulton	Silurian	crushed stone—riprap, building, road base, resurfacing stone, railroad ballast; aglime	Ae-10
Belmont	Ayers Limestone Quarry, Inc.	Ayers Limestone Quarry, Inc.	Pease	Permian	crushed stone—riprap, building, road base, resurfacing stone	Bt-716
	Braun Enterprises	Riesbeck Pit	Pease		crushed stone—riprap	Bt-1161
	Cravat Coal Co.	Dover Pit	York	Fishpot limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Bt-119
Brown	Brown County Rock Crusher	Brown County Rock Crusher	Lewis	Ordovician	crushed stone—building, road base, resurfacing stone	Bn-1
Carroll	Puskarich Limestone Co.	Puskarich Limestone Co.	Lee	Pennsylvanian	crushed stone—building, road base, resurfacing stone	Cl-183
Clark	American Aggregates Corp.	Springfield #223	Springfield	Cedarville Dolomite (Silurian)	crushed stone—building, road base, resurfacing stone	Ck-1
Clinton	Melvin Stone Co.	Melvin Stone Co.	Richland	Guelph Dolomite (Silurian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, refractory stone; aglime	Cln-1
Crawford	National Lime & Stone Co.	Bucyrus Plant	Holmes	Devonian	crushed stone—riprap, metallurgical stone, building, road base, resurfacing stone, railroad ballast, extenders, fillers; aglime	Cd-1
Darke	American Aggregates Corp.	Fort Jefferson #424	Butler	Cedarville Dolomite (Silurian)	crushed stone—building, road base, resurfacing stone	Dke-1
Delaware	American Aggregates Corp.	Shawnee #225	Concord	Columbus & Delaware Limestones (Devonian)	crushed stone—building, road base, resurfacing stone	Del-4
	National Lime & Stone Co.	Delaware Plant	Scioto	Columbus & Delaware Limestones (Devonian)	crushed stone—riprap, metallurgical stone, building, road base, resurfacing stone, railroad ballast; aglime	Del-5
	Owens Stone Co., Inc.	Owens Stone Co., Inc.	Scioto	Columbus Limestone (Devonian)	crushed stone—building, road base, resurfacing stone; aglime	Del-3
Erie	Rogers Group, Inc. (dba Sandusky Crushed Stone Co.)	Sandusky Crushed Stone Co.	Groton	Columbus & Delaware Limestones (Devonian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast; aglime; stone sand, stone concrete blocks, stone septic tanks	Ee-11
	Wagner Quarries Co.	Wagner Quarries Co.	Perkins	upper Columbus & Delaware Limestones (Devonian)	crushed stone—building, road base, resurfacing stone	Ee-1

Fayette	American Aggregates Corp.	Blue Rock Limestone #222	Perry	Tymochtee Dolomite (Silurian)	crushed stone—building, road base, resurfacing stone	Fe-2
	Melvin Stone Co.	Melvin Stone Co.	Green	Tymochtee Dolomite (Silurian)	crushed stone—stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone; aglime	Fe-1
Franklin	American Aggregates Corp.	Columbus Limestone #221	Marion	Columbus Limestone (Devonian)	crushed stone—building, road base, resurfacing stone	Fn-53
		Marble Cliff #224	Norwich	Columbus & Delaware Limestones (Devonian)	crushed stone—building, road base, resurfacing stone	Fn-2
Greene	American Aggregates Corp.	Cedarville Limestone #423	Cedarville	Cedarville Dolomite (Silurian)	crushed stone—building, road base, resurfacing stone	Ge-17
	Southwestern Portland Cement Co.	Southwestern Portland Cement Co.	Bath	upper Brassfield Limestone (Silurian)	stone for portland cement manufacture; aglime	Ge-1
Hancock	National Lime & Stone Co.	Findlay Plant	Liberty	Silurian	crushed stone—riprap, building, road base, resurfacing stone, railroad ballast	Hk-1
	Pifer Stone Co.	Pifer Stone Co.	Madison	Tymochtee Dolomite (Silurian)	crushed stone—farm use, general repairs	Hk-4
	Tarbox-McCall Stone Co. (Div. of Hancock Ready Mix, Inc.)	Tarbox-McCall Stone Co.	Liberty	Greenfield Dolomite (Silurian)	crushed stone—riprap, stone for portland cement concrete, building, road base, resurfacing stone	Hk-2
Hardin	Hardin Quarry Co., Inc.	Hardin Quarry Co., Inc.	Pleasant	Tymochtee Dolomite (Silurian)	crushed stone—riprap, building, road base, resurfacing stone; aglime	Hdn-2
Highland	Davon, Inc.	Highland Stone Division	Hamer	Brassfield & Dayton Limestones (Silurian)	crushed stone—riprap, metallurgical stone, stone for portland cement concrete, building, road base, resurfacing stone; aglime	Hd-2
	Marshall Quarry, Inc.	Marshall Quarry, Inc.	Marshall		crushed stone—building, road base, resurfacing stone	Hd-4
	Ohio Asphaltic Limestone Corp.	Ohio Asphaltic Limestone Corp.	Union		crushed stone—riprap, stone for bituminous concrete, building, road base, resurfacing stone; aglime	Hd-3
Holmes	Holmes Limestone Co.	241 Plant	Hardy	Putnam Hill limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Hs-67
Jackson	Waterloo Coal Co.	Zoar	Bloomfield, Madison	Vanport limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Jkn-367
Lawrence	Belville Mining Co., Inc.	Brady Creek	Washington		crushed stone—riprap, building, road base, resurfacing stone	Le-403
Logan	Connolly Construction Co., Inc.	East Liberty Quarry	Perry		crushed stone—unspecified	Lgn-1
	C. E. Duff & Son, Inc.	C. E. Duff & Son, Inc.	Richland		crushed stone—riprap, stone for portland cement concrete, building, road base, resurfacing stone	Lgn-15
	Northwood Stone & Asphalt Co.	Northwood Stone & Asphalt Co.	Richland	Tymochtee Dolomite (Silurian)	crushed stone—riprap, stone for bituminous concrete, building, road base, resurfacing stone	Lgn-2
Lucas	The France Stone Co.	Silica	Sylvania	Detroit River Group (Devonian)	crushed stone—building, road base, resurfacing stone	Ls-3
		Waterville	Waterville	Tymochtee Dolomite (Silurian)	crushed stone—riprap, building, road base, resurfacing stone	Ls-1
	Stoneco	Maumee Quarry	Waynesfield		crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast, other; aglime	Ls-2
Mahoning	Honey Creek Stone Co.	Honey Creek Stone Co.	Springfield	Vanport limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone; unspecified	Mg-54
	SME Bessemer Cement, Inc.	Quarry #8	Poland	Vanport limestone (Pennsylvanian)	crushed stone—unspecified; stone for portland cement manufacture; aglime	Mg-608
Marion	J. M. Hamilton & Sons Co., Inc.	J. M. Hamilton & Sons Co., Inc.	Marion		crushed stone—stone for bituminous concrete, building, road base, resurfacing stone	Mn-2
	National Lime & Stone Co.	Marion Plant	Grand Prairie, Marion	Columbus & Delaware Limestones (Devonian)	crushed stone—riprap, building, road base, resurfacing stone, railroad ballast; aglime	Mn-3

[1]Information for An-3 includes information for An-2 and An-11.

1987 OHIO DIRECTORY OF LIMESTONE/DOLOMITE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY—Continued

County	Name of operator	Name of mine or quarry	Township	Geological unit	Type and principal use	State mine number
Marion (con't)	Tri County Limestone Co.	Tri County Limestone Co.	Grand	Silurian	crushed stone—riprap, stone for portland cement concrete, building, road base, resurfacing stone, other; aglime	Mn-1
Mercer	John W. Karch Stone Co.	John W. Karch Stone Co.	Jefferson	Silurian	crushed stone—riprap, building, road base, resurfacing stone; aglime	Mr-1
	Western Asphalt, Inc. (dba Rockford Stone Co.)	Rockford Stone Co.	Dublin	Lockport & Guelph Dolomites (Silurian)	crushed stone—riprap, stone for bituminous concrete, building, road base, resurfacing stone; aglime	Mr-2
Miami	Armco, Inc.	Piqua Minerals	Springcreek	Brassfield Limestone, Dayton & Laurel Dolomites (Silurian)	crushed stone—riprap, metallurgical stone, building, road base, resurfacing stone, railroad ballast, fillers; aglime	Mi 1
	Gregory Stone Co., Inc.	Gregory Quarry	Union		dimension stone	Mi-16
	Ludlow Stone, Inc.	Ludlow Stone, Inc.	Union	Brassfield Limestone (Silurian)	crushed stone—riprap, building, road base, resurfacing stone; aglime	Mi-502
	C. F. Poeppelman, Inc.	C. F. Poeppelman, Inc.	Newberry	Cedarville Dolomite (Silurian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, cement block; aglime	Mi-10
Monroe	Christman Quarry	Christman Quarry	Franklin		crushed stone—riprap, unspecified	Me-501
Montgomery	American Aggregates Corp.	Phillipsburg Limestone #421	Clay	Cedarville Dolomite (Silurian)	crushed stone—building, road base, resurfacing stone	My-1
		Dayton Limestone #420	Madison	Cedarville Dolomite (Silurian)	crushed stone—building, road base, resurfacing stone	My-23
	Southwestern Portland Cement Co.	Southwestern Portland Cement Co.	Wayne	upper Brassfield Limestone (Silurian)	stone for portland cement manufacture	My-58
Morgan	Central Ohio Coal Co.	Horse Run	Manchester	Benwood limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Mon-600
Muskingum	Central Ohio Coal Co.	Tilton's Run	Meigs	Benwood limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Ne-41
	Chesterhill Stone Co.	Plant #1	Newton	Maxville Limestone (Mississippian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast; aglime	Mum-106
	Sidwell Bros., Inc.	Sidwell Quarry	Newton	Maxville Limestone (Mississippian)	crushed stone—building, road base, resurfacing stone	Mum-104
Noble	Central Ohio Coal Co.	Hoskinsville Stone Quarry	Brookfield	Benwood limestone (Pennsylvanian)	crushed stone—riprap, building, road base, resurfacing stone	Ne-147
	King Limestone, Inc.	King Limestone, Inc.	Brookfield	Ewing limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Ne-106
Ottawa	Edward Kraemer & Sons, Inc.	White Rock Quarry	Allen	Guelph Dolomite (Silurian)	crushed stone—riprap, metallurgical stone, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone; aglime	Oa-6
	Standard Slag Co.	Marblehead	Danbury	Columbus Limestone (Devonian)	crushed stone—riprap, stone for portland cement concrete, building, road base, resurfacing stone	Oa-7
	Stoneco	Rocky Ridge	Benton		crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone	Oa-14
	USG Industries, Inc.	USG Industries, Inc.	Clay	Silurian	crushed stone—building, road base, resurfacing stone; lime (burned stone)—building, chemical and industrial	Oa-1[2]
	U.S. Gypsum Co.	U.S. Gypsum Co.	Clay	Silurian	crushed stone—building, road base, resurfacing stone; lime (burned stone)—building, chemical and industrial	Oa-1[2]

Paulding	The France Stone Co.	Paulding	Crane	Tenmile Creek Dolomite (Devonian)	crushed stone—riprap, building, road base, resurfacing stone	Pg-7
	Lafarge Corp.	Paulding Quarry	Crane	Detroit River Group & Dundee Limestone (Devonian)	stone for portland cement manufacture	Pg 1
	Stoneco	Auglaize Quarry	Auglaize	Detroit River Group & Dundee Limestone (Devonian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast, refractory stone, other; aglime	Pg 2
Pickaway	Melvin Stone Co.	Limestone, Inc.	Perry		crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone	Pky-4
Pike	Latham Limestone, Inc.	Latham Limestone, Inc.	Mifflin	Greenfield Dolomite (Silurian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone; aglime	Pke-13
Preble	Wysong Stone Co.	Wysong Stone Co.	Twin		crushed stone—riprap, building, road base, resurfacing stone; dimension stone	Pre-5
Putnam	Putnam Stone Co.	Putnam Stone Co.	Pleasant, Riley	Silurian	crushed stone—riprap, building, road base, resurfacing stone	Pm-2
Sandusky	Gottron Bros. Co.	Gottron Bros. Co.	Sandusky	Silurian	crushed stone—stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, fill	Sy-5
	Martin Marietta Chemicals	Woodville Quarry	Woodville	Guelph Dolomite (Silurian)	crushed stone—riprap, metallurgical stone; lime (burned stone)—chemical and industrial, refractory	Sy-1
	Steetley Resources, Inc.	Ohio Lime Co.	Jackson	Guelph Dolomite (Silurian)	crushed stone—other; aglime; lime (burned stone)—chemical and industrial, refractory	Sy 4
		Ohio Lime Co.	Madison	Silurian	crushed stone—metallurgical stone, building, road base, resurfacing stone; aglime; lime (burned stone)—chemical and industrial, other	Sy 8
		Ohio Lime Co.	Woodville		crushed stone—metallurgical stone, building, road base, resurfacing stone; aglime; lime (burned stone)—chemical and industrial, other	Sy-3
Seneca	The France Stone Co.	Bloomville	Bloom	Columbus & Delaware Limestones (Devonian)	crushed stone—riprap, building, road base, resurfacing stone; dimension stone; aglime	Sa 3
		Flat Rock	Thompson	Columbus & Delaware Limestones (Devonian)	crushed stone—riprap, building, road base, resurfacing stone; dimension stone; aglime	Sa 1
	North Shore Stone Quarries, Inc.	North Shore Stone Quarries, Inc.	Thompson		crushed stone—riprap; dimension stone	Sa-8
Shelby	Miami River Stone Co.	Miami River Stone Co.	Orange	Cedarville Dolomite (Silurian)	crushed stone—riprap, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast; aglime	Shy-6
	Sidney Sand & Gravel Co.	Rock Run Quarry	Washington		crushed stone—riprap	Shy 16
	Spring Creek Corp.	River Quarry	Clinton		crushed stone—building, road base, resurfacing stone	Shy 15
Stark	East Ohio Limestone Co.	East Ohio Limestone Co.	Lake	Putnam Hill limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Sk-663
	Kohl Industries	Black Hawk	Bethlehem, Pike	Putnam Hill & Vanport limestones (Pennsylvanian)	crushed stone—riprap, building, road base, resurfacing stone	Sk-217
Tuscarawas	Fuhrer Farms & Mining	Fuhrer Farms & Mining	Franklin	Pennsylvanian	crushed stone—building, road base, resurfacing stone	Ts-1961
	Kimble Clay & Limestone Co.	Kimble Clay & Limestone Co.	Dover	Vanport limestone (Pennsylvanian)	crushed stone—riprap, building, road base, resurfacing stone	Ts-1818
	Sugarcreek Clay & Limestone, Inc.	Sugarcreek Clay & Limestone, Inc.	Sugar Creek		crushed stone—building, road base, resurfacing stone	Ts-1928
Union	L. G. Rockhold & Sons, Inc.	L. G. Rockhold & Sons, Inc.	York		crushed stone—stone for portland cement concrete, building, road base, resurfacing stone; aglime	Un 1

[2]This mine was operated 1st and 2nd quarters 1987 by USG Industries, Inc., and 3rd and 4th quarters by U.S. Gypsum Co.

1987 OHIO DIRECTORY OF LIMESTONE/DOLOMITE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY—Continued

County	Name of operator	Name of mine or quarry	Township	Geological unit	Type and principal use	State mine number
Union (con't)	Union Aggregates Co.	Union Limestone Plant	Mill Creek	Columbus Limestone (Devonian)	crushed stone—riprap, building, road base, resurfacing stone; aglime	Un-2
Van Wert	Ridge Township Quarry	Ridge Township Quarry	Ridge	Tymochtee Dolomite (Silurian)	crushed stone—building, road base, resurfacing stone, unspecified	Vt-7
	Stoneco	Scott Quarry	Union		crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, other; aglime	Vt-3
	Suever Stone Co., Inc.	Delphos Plant	Washington	Tymochtee Dolomite (Silurian)	crushed stone—riprap, stone for portland cement concrete, building, road base, resurfacing stone, railroad ballast, other	Vt-1
Vinton	G & M Supply, Inc. (dba Clinton Stone Co.)	Sands Hill Strip	Clinton		crushed stone—building, road base, resurfacing stone; aglime	Vn-174
Warren	American Aggregates Corp.	Lytle Limestone #422	Wayne	Brassfield Limestone (Silurian)	crushed stone—building, road base, resurfacing stone	Wan-35
Wayne	Holmes Limestone Co.	Wayne Mines	Prairie	Putnam Hill limestone (Pennsylvanian)	crushed stone—building, road base, resurfacing stone	Hs-79
Wood	The France Stone Co.	Custar	Milton		crushed stone—riprap, building, road base, resurfacing stone; aglime	Wd-5
	MacRitchie Materials, Inc.	MacRitchie Materials, Inc.	Perry	Silurian	crushed stone—unspecified	Wd-1
	Stoneco	Lime City Quarry	Perrysburg		crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast, other; aglime	Wd-6
		Portage Quarry	Portage	Greenfield & Lockport Dolomites (Silurian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast, other; aglime	Wd-11
Wyandot	McCarthy Stone Quarry	McCarthy Stone Quarry	Pitt	Bass Islands Group (Silurian)	crushed stone—stone for bituminous concrete, building, road base, resurfacing stone	Wt-3
	National Lime & Stone Co.	Carey Plant	Crawford	Silurian	crushed stone—riprap, metallurgical stone, building, road base, resurfacing stone, railroad ballast, extenders, fillers; aglime; lime (burned stone)—chemical and industrial	Wt-1
	Wyandot Dolomite, Inc.	Wyandot Dolomite, Inc.	Crawford	Greenfield & Guelph Dolomites (Silurian)	crushed stone—riprap, stone for portland cement concrete, stone for bituminous concrete, building, road base, resurfacing stone, railroad ballast, refractory stone, manufacturing sand; aglime	Wt-8

1987 OHIO DIRECTORY OF LAKE ERIE AND MAUMEE RIVER SAND AND GRAVEL DREDGERS

Name of operator	Permitted dredging areas
Erie Sand & Gravel Co.	Fairport, Vermilion-Lorain Inner, Vermilion-Lorain Outer
Osborne Materials Co.	Fairport, Vermilion-Lorain Inner, Vermilion-Lorain Outer
White Bros. Sand, Inc.	Maumee Bay, Maumee River

1987 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Allen	Rockport Sand & Gravel Co., Inc.	Rockport Sand & Gravel Co., Inc.	Monroe	sand—portland cement concrete, building, filtration gravel—filtration, landscaping	An-14
		Rockport Sand & Gravel Co., Inc.	Monroe	gravel—building	An-15
Ashland	Alvin Keiffer Trucking & Excavating	Dinsmore Pit	Jackson	sand—road construction, resurfacing gravel—road construction, resurfacing	Ald-12
	Ries Sand & Gravel	Ries Sand & Gravel	Mohican	sand—building, road construction, resurfacing, unspecified gravel—building, road construction, resurfacing, unspecified	Ald-9
	Simanton Sand Co.	Simanton Sand Co.	Montgomery	sand—building gravel—building	Ald-11
	Young's Sand & Gravel Co.	Young's Sand & Gravel Co.	Green	sand—building, road construction, resurfacing, other gravel—building, road construction, resurfacing, other	Ald-7
Ashtabula	Janson's Soil Service	Janson's Soil Service	Morgan	gravel—driveway use	Asa-14
	Kinsman Sand & Gravel Co.	Kinsman Sand & Gravel Co.	Wayne	sand—unspecified gravel—unspecified	Asa-K[1]
	Nelson Sand & Gravel, Inc.	Nelson Sand & Gravel, Inc.	Kingsville	sand—building, fill	Asa-11
	North Ridge Materials	North Ridge Materials	Kingsville	gravel—building, road construction, resurfacing, other	Asa-16
	R. W. Sidley, Inc.	Kingsville	Kingsville	sand—bituminous concrete, ice control gravel—building, bituminous concrete, filtration	Asa-15
Athens	Black Top Contracting, Inc.	Black Top #1	Rome	sand—road construction, resurfacing gravel—road construction, resurfacing	As-588
	Lake Hope Asphalt, Inc.	Lake Hope Asphalt, Inc.	York	sand—bituminous concrete, building, fill gravel—bituminous concrete, road construction, resurfacing, driveway use, fill	As-1161
Auglaize	Joseph Sand & Gravel	Joseph Sand & Gravel	Union	gravel—fill	Ae-23
	National Lime & Stone Co.	Wapakoneta Plant	Union	sand—portland cement concrete, building gravel—portland cement concrete	Ae-30
	Quality Ready Mix, Inc.	Quality Ready Mix, Inc.	Pusheta	sand—building, unspecified gravel—building, unspecified	Ae-16
Belmont	Tri-State Asphalt Productions	Tri-State Asphalt Productions	Mead	sand—portland cement concrete, bituminous concrete gravel—portland cement concrete, bituminous concrete, road construction, resurfacing, fill, ice control, abrasives	Bt-74
Butler	Aggregate Services, Inc.	Aggregate Services, Inc.	St. Clair	sand—other gravel—road construction, resurfacing, other	Br-36
	American Aggregates Corp.	Fairfield #711	Fairfield	sand—road construction, resurfacing gravel—road construction, resurfacing	Br-35
		Hamilton #710	St. Clair	sand—road construction, resurfacing gravel—road construction, resurfacing	Br-5
	Dingledine Sand & Gravel	Dingledine Sand & Gravel	Milford	sand—portland cement concrete, building gravel—building, portland cement concrete, road construction, resurfacing, farm use, fill	Br-50

[1]No mine number has been assigned by the Division of Mines.

1987 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY—Continued

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Butler (con't)	Dravo Basic Materials Co., Inc.	Fairfield Plant	Fairfield	sand—road construction, resurfacing gravel—road construction, resurfacing	Br-14
		Ross Plant	Ross	sand—road construction, resurfacing gravel—road construction, resurfacing	Br-29
	Indian Creek Sand & Gravel Co.	Indian Creek Sand & Gravel Co.	Ross	sand—fill gravel—building, bituminous concrete, road construction, resurfacing, other	Br-40
	Mecco, Inc.	Mecco, Inc.	Lemon	sand—portland cement concrete, building gravel—building, portland cement concrete	Br 15
	Middletown Sand & Gravel Co.	Middletown Sand & Gravel Co.	Lemon	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Br 1
	New Miami Sand & Gravel, Inc.	New Miami Sand & Gravel, Inc.	St. Clair	sand—building gravel—building, road construction, resurfacing	Br-3
	Watson Gravel, Inc.	Watson Pit	Fairfield	sand—portland cement concrete, bituminous concrete, building, fill gravel—building, portland cement concrete, road construction, resurfacing	Br 47
	Weidle Sand & Gravel, Inc.	Weidle Sand & Gravel, Inc.	Madison	sand—building gravel—building	Br-6
	Welch Sand & Gravel, Inc.	Schlichter Pit	Fairfield	sand—building gravel—building	Br-38
Carroll	Oneida Sand & Gravel, Inc.	Oneida Sand & Gravel, Inc.	Brown	sand—road construction, resurfacing gravel—road construction, resurfacing	Cl-204
Champaign	American Aggregates Corp.	Urbana #615	Urbana	sand—road construction, resurfacing gravel—road construction, resurfacing	Cpn-1
	D & W Gravel Co.	D & W Sand & Gravel	Union	sand—fill gravel—fill	Cpn-21
	Mechanicsburg Sand & Gravel, Inc.	Mechanicsburg Sand & Gravel, Inc.	Union	sand—unspecified gravel—unspecified	Cpn-22
	Moore's Excavating Co.	Moore's Excavating Co.	Salem	sand—building gravel—building	Cpn-20
Clark	American Aggregates Corp.	Fairborn #413	Bethel	sand—road construction, resurfacing gravel—road construction, resurfacing	Ck-13
	County Line Sand & Gravel	County Line Sand & Gravel	Moorefield	gravel—unspecified	Ck-27
	Demmy Sand & Gravel	Demmy Sand & Gravel	Mad River	sand—building gravel—fill	Ck-502
	Hilltop Basic Resources, Inc. (dba Enon Washed Sand & Gravel Co.)	Enon Washed Sand & Gravel Co.	Bethel	sand—portland cement concrete, bituminous concrete, building gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing, filtration	Ck-3
	Hilltop Basic Resources, Inc.	Fairborn Aggregate Plant	Bethel	sand—portland cement concrete, bituminous concrete gravel—portland cement concrete, bituminous concrete, fill, pavement base	Ge-4[2]
	Springfield Sand & Gravel Co.	Springfield Sand & Gravel Co.	Springfield	sand—portland cement concrete, bituminous concrete, building gravel—building, portland cement concrete, bituminous concrete, other	Ck-25
Clermont	Barrett Paving Materials, Inc.	Newtown Sand & Gravel	Union	sand—bituminous concrete gravel—bituminous concrete	Ct-9
	Kipp's Gravel Co., Inc.	Kipp's Gravel Co., Inc.	Stonelick	sand—unspecified gravel—unspecified	Ct-7
Columbiana	Beaver Creek Resources, Inc.	Beaver Creek Resources, Inc.	Salem	sand—building, fill, pipe bedding gravel—building, driveway use	Ca-855
Coshocton	Apache Aggregate & Paving Co.	Apache Aggregate & Paving Co.	Keene	sand—road construction, resurfacing gravel—bituminous concrete, road construction, resurfacing	Cn-783
	Boyd Gravel Co.	Boyd Gravel Co.	Bethlehem	sand—building, road construction, resurfacing gravel—road construction, resurfacing	Cn-694
	Spring Industries, Inc.	Newcomerstown Plant	Oxford	sand—portland cement concrete, bituminous concrete gravel—unspecified	Cn-624

Crawford	Gibson Sand & Gravel Co.	Gibson Sand & Gravel Co.	Jefferson	sand—fill gravel—fill	Cd-3
Darke	Foureman's Sand & Gravel, Inc.	Foureman's Sand & Gravel, Inc.	Greenville	sand—portland cement concrete, unspecified gravel—building, portland cement concrete, unspecified	Dke-4
	Tom Hollinger Excavating	Hollinger Gravel Plant	Harrison	gravel—ballast, farm use	Dke-10
Defiance	Hillsdale Sand & Gravel, Inc.	Hillsdale Sand & Gravel, Inc.	Farmer	gravel—road construction, resurfacing	De-2
Erie	Elmer Borchardt, Inc. Jarrett Sand Co.	Elmer Borchardt, Inc. Jarrett Sand Co.	Margaretta Groton	gravel—road construction, resurfacing sand—fill gravel—fill	Ee-18 Ee-29
	Keener Sand & Clay Co. Mesenburg Bros., Inc. Miller Sand Co.	Huron Plant Mesenburg Bros., Inc. Miller Sand Co.	Huron Milan Margaretta	sand—foundry sand—unspecified sand—fill	Ee-5 Ee-24 Ee-28
Fairfield	Paul D. Beery Trucking Co. Lancaster Sand & Gravel Co.	Paul D. Beery Trucking Co. Lancaster Sand & Gravel Co.	Pleasant Berne	gravel—road construction, resurfacing, other sand—portland cement concrete, bituminous concrete, building, fill gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing, fill	Fd-14 Fd-13
Franklin	Agg Rok Materials (Div. of Wapak Sand & Gravel Co.)	Agg Rok	Franklin	sand—portland cement concrete, bituminous concrete gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing	Fn-36
	American Aggregates Corp.	Lockbourne #213	Hamilton	sand—road construction, resurfacing gravel—road construction, resurfacing	Fn-23
		Columbus #210	Marion	sand—road construction, resurfacing gravel—road construction, resurfacing	Fn-6
	J. P. Sand & Gravel Co.	J. P. Sand & Gravel Co.	Hamilton	sand—building gravel—building	Fn-52
	L. & M. Excavators, Inc.	Westerville Industrial Park	Blendon	sand—building gravel—building	Fn-54
	Olen Corp.	Olen Corp.	Brown	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Fn-43
Gallia	M. T. Epling Co.	Georges Creek Pit	Addison	sand—unspecified gravel—unspecified	Ga-243
	Keener Sand & Clay Co.	Gallia Plant	Springfield	sand—foundry	Ga-507
Geauga	Haueter Sand & Gravel Co.	Haueter Sand & Gravel Co.	Burton, Newbury	sand—portland cement concrete, building gravel—road construction, resurfacing, filtration, other	Gea-29
	Teague Gravel Co., Inc.	Teague Gravel Pit	Newbury	sand—building gravel—building	Gea-35
Greene	American Aggregates Corp.	Haines Rd. #419	Beaver Creek	sand—road construction, resurfacing gravel—road construction, resurfacing	Ge-32
		Xenia #414	Beaver Creek	sand—road construction, resurfacing gravel—road construction, resurfacing	Ge-33
	Ernst Aggregates, Inc.	Spring Valley Plant	Spring Valley	sand—unspecified gravel—unspecified	Ge-42
	Hilltop Basic Resources, Inc.	Fairborn Aggregate Plant	Bath	sand—portland cement concrete, bituminous concrete gravel—portland cement concrete, bituminous concrete, fill, pavement base	Ge-4[3]
	Donald Martin Contracting Phillips Sand & Gravel	Donald Martin Contracting Phillips Sand & Gravel	Spring Valley Beaver Creek	sand—other sand—unspecified gravel—unspecified	Ge-40 Ge 36
	Xenia Sand, Gravel, & Asphalt Co.	Xenia Sand, Gravel, & Asphalt Co.	Xenia	sand—building, filtration, fill gravel—building, road construction, resurfacing, filtration	Ge-10
Hamilton	American Aggregates Corp.	Harrison #712	Harrison	sand—road construction, resurfacing gravel—road construction, resurfacing	Hmn-37
		Kilby Rd. #713	Whitewater	sand—road construction, resurfacing gravel—road construction, resurfacing	Hmn-AAC[4]
	Ashcraft Sand & Gravel Barrett Paving Materials, Inc.	Ashcraft Sand & Gravel Barrett Paving Materials, Inc.	Whitewater Crosby	gravel—building, unspecified sand—bituminous concrete, other gravel—bituminous concrete, fill, other	Hmn 54 Hmn 44

[2]See also Greene County.
[3]See also Clark County
[4]No mine number has been assigned by the Division of Mines.

1987 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY—Continued

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Hamilton (con't)	James Bunnell, Inc.	James Bunnell, Inc.	Harrison	sand—other gravel—other	Hmn-50
		James Bunnell, Inc.	Whitewater	sand—other gravel—other	Hmn-59
	Dravo Basic Materials Co., Inc.	Newtown Plant	Anderson	sand—road construction, resurfacing gravel—road construction, resurfacing	Hmn-11
		Camp Dennison Plant	Symmes	sand—road construction, resurfacing gravel—road construction, resurfacing	Hmn-5
		Cleves Plant	Whitewater	sand—road construction, resurfacing gravel—road construction, resurfacing	Hmn-68
	Harrison Sand & Gravel Co.	Harrison Sand & Gravel Co.	Harrison	sand—bituminous concrete, building, road construction, resurfacing gravel—building, portland cement concrete, bituminous concrete, filtration, fill	Hmn-17
	Rack Sand, Inc.	Rack Sand, Inc.	Mill Creek	sand—unspecified gravel—unspecified	Hmn-10
	Three Rivers Sand & Gravel, Inc.	Three Rivers Sand & Gravel, Inc.	Miami	gravel—other	Hmn-28
	Watson Gravel, Inc.	Harrison Pit	Whitewater	sand—portland cement concrete, bituminous concrete, building, fill gravel—building, portland cement concrete, road construction, resurfacing	Hmn-60
	Welch Sand & Gravel, Inc.	East Miami Pit	Colerain	sand—building gravel—building	Hmn-48
	Whitewater Aggregates, Inc.	Whitewater Aggregates, Inc.	Harrison	sand—portland cement concrete gravel—portland cement concrete	Hmn-69
Henry	Gerken Materials, Inc.	Gerken Materials, Inc.	Liberty	sand—road construction, resurfacing	Hy-5
Holmes	Bros. Sand & Gravel Co.	Fair Pit	Hardy	sand—portland cement concrete, building, road construction, resurfacing, unspecified gravel—building, portland cement concrete, road construction, resurfacing, unspecified	Hs-82
	Feikert Sand & Gravel, Inc.	Feikert Sand & Gravel, Inc.	Salt Creek	sand—portland cement concrete, building gravel—building, portland cement concrete, road construction, resurfacing, filtration, fill	Hs-511
Huron	Price Sand & Gravel (Div. of Price Asphalt & Paving Co.)	Price Sand & Gravel	Norwalk	sand—portland cement concrete, building, road construction, resurfacing, filtration gravel—building	Hrn-1
Knox	Fredericktown Sand & Gravel Co.	Fredericktown Sand & Gravel Co.	Middlebury	sand—portland cement concrete, building, road construction, resurfacing gravel—building, portland cement concrete, road construction, resurfacing	Kx-13
	Goodwin Sand & Gravel, Inc.	Goodwin Sand & Gravel, Inc.	Clinton	sand—portland cement concrete, bituminous concrete, building, other gravel—building, portland cement concrete, bituminous concrete, other	Kx-7
	Kokosing Materials, Inc.	KMI #1	Morris	sand—unspecified gravel—unspecified	Kx-16[5]
	Mickley Gravel Co.	Mickley Gravel Co.	Union	sand—road construction, resurfacing gravel—road construction, resurfacing	Kx-5
	Olen Corp.	Olen Corp.	Morris	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Kx-16[5]
	Purdy Sand & Gravel Co.	Purdy Sand & Gravel Co.	Clinton	sand—building, road construction, resurfacing, other gravel—building, road construction, resurfacing, other	Kx-3
	Small's Sand & Gravel, Inc.	Small's Sand & Gravel, Inc.	College	sand—unspecified	Kx-8
		Small's Sand & Gravel, Inc.	Harrison	sand—unspecified gravel—unspecified	Kx-15
		Small's Sand & Gravel, Inc.	Harrison	gravel—unspecified	Kx-17
Lake	R. W. Sidley, Inc.	Painesville Plant	Painesville	sand—portland cement concrete, bituminous concrete, road construction, resurfacing gravel—building, portland cement concrete, bituminous concrete, filtration, other	Lke-7

Lawrence	Becky Lane Trucking, Inc.	Becky Lane Sand	Perry	sand—fill	Le-430
	Burlington Sand & Gravel Co.	Burlington Sand & Gravel Co.	Perry	sand—fill gravel—fill	Le-426
	D & D Sand Bank	D & D Sand Bank	Perry	sand—fill	Le-445
Licking	Alexandria Materials Co.	Alexandria Pit	St. Albans	sand—unspecified gravel—unspecified	Lg-8[6]
	American Aggregates Corp.	Newark #214	Newark	sand—road construction, resurfacing gravel—road construction, resurfacing	Lg-2
	Dry Creek Gravel Co.	Water Works	Newark	sand—unspecified gravel—unspecified	Lg-502
		Dry Creek Gravel Co.	Newton	sand—unspecified gravel—unspecified	Lg-DC[7]
		Dry Creek Farms	Washington	sand—portland cement concrete, building, road construction, resurfacing, unspecified gravel—building, portland cement concrete, road construction, resurfacing, unspecified	Lg-31
	Newark Asphalt Co.	Alexandria Pit	St. Albans	sand—bituminous concrete, road construction, resurfacing gravel—bituminous concrete, road construction, resurfacing	Lg-8[6]
	Van Wey Sand & Gravel, Inc.	Van Wey Sand & Gravel, Inc.	Newton	sand—foundry, building, road construction, resurfacing gravel—building, road construction, resurfacing	Lg-10
	York Road Gravel Co.	York Road Gravel Co.	Etna	gravel—other	Lg-38
Logan	Cummins Family Contracting	Cummins Family Contracting	Washington	gravel—other	Lgn-38
	C. E. Duff & Son, Inc.	Duff Sand Co.	Washington	sand—portland cement concrete, building	Lgn-31
	Neer's Sand & Gravel	Neer's Sand & Gravel	Union	sand—unspecified gravel—unspecified	Lgn-6
Lorain	Belu & Son Paving, Inc.	Belu Sand Pit	Henrietta	sand—fill	Ln-12
Lucas	Maumee Haulers, Inc.	Nebraska Pit	Springfield	sand—building	Ls-20
	Seaway Sand & Stone, Inc.	Seaway Sand & Stone, Inc.	Swanton	sand—building	Ls-13
Mahoning	Neiheisel Sand & Gravel	Neiheisel Sand & Gravel	Green	sand—building gravel—building	Mg-NSG[7]
Marion	Union Aggregates Co.	Prospect Sand & Gravel Plant	Prospect	sand—building gravel—other	Mn-10
Medina	Baker Sand, Inc.	Baker Sand, Inc.	Harrisville, Westfield	sand—road construction, resurfacing gravel—road construction, resurfacing	Ma-4
		Baker Sand, Inc.	Westfield	sand—building, road construction, resurfacing, fill gravel—road construction, resurfacing	Ma-20
	Seville Sand & Gravel, Inc.	Seville Sand & Gravel, Inc.	Harrisville	sand—bituminous concrete, building gravel—building, road construction, resurfacing	Ma-9
		Seville Sand & Gravel, Inc.	Harrisville	sand—bituminous concrete, building, other gravel—building, road construction, resurfacing	Ma-22
	Silchuk Gravel Co.	Silchuk Gravel Co.	Wadsworth	gravel—fill	Ma-16
Meigs	Dravo Basic Materials Co., Inc.	Apple Grove Plant	Letart	sand—road construction, resurfacing gravel—road construction, resurfacing	Ms-205
	Humphrey Farms	Vivian Humphrey	Olive	gravel—other	Ms-295
	Meigs County Commissioners	Meigs County Pit	Letart	sand—road construction, resurfacing gravel—road construction, resurfacing	Ms-301
	Richards & Son, Inc.	Richards & Son, Inc.	Letart	sand—bituminous concrete, building, road construction, resurfacing gravel—building, bituminous concrete, road construction, resurfacing	Ms-298
Miami	Ernst Gravel Co.	Ernst Gravel Co.	Springcreek	sand—unspecified gravel—unspecified	Mi-6
	Fenner Sand & Gravel	Woodville Concrete Corp.	Newton	sand—road construction, resurfacing, unspecified gravel—building, bituminous concrete, unspecified	Mi-4[8]
	New Carlisle Sand & Gravel Co.	New Carlisle Sand & Gravel Co.	Bethel	sand—fill gravel—fill	Mi-501
	Troy Gravel Co.	Troy Gravel Co.	Concord	sand—unspecified gravel—unspecified	Mi-3

[6]This mine was operated 1st quarter 1987 by Kokosing Materials, Inc., and 2nd through 4th quarters by Olen Corp.
[6]This mine was operated 1st quarter 1987 by Alexandria Materials Co. and 2nd through 4th quarters by Newark Asphalt Co.
[7]No mine number has been assigned by the Division of Mines.
[8]This mine was operated 1st and 2nd quarters 1987 by Woodville Concrete Corp. and 3rd and 4th quarters by Fenner Sand & Gravel.

1987 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY—Continued

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Miami (con't)	Valley Gravel Co.	Valley Gravel Co.	Monroe	sand—unspecified gravel—unspecified	Mi-8
	John Wise Gravel Co.	John Wise Gravel Co.	Newberry	sand—farm use gravel—building, farm use, gas line cover	Mi-9
	Woodville Concrete Corp.	Woodville Concrete Corp.	Newton	sand—building, other gravel—building, other	Mi-4[9]
Montgomery	American Aggregates Corp.	Rip Rap Road #416	Wayne	sand—road construction, resurfacing gravel—road construction, resurfacing	My-66
	Broadway Sand & Gravel, Inc.	Broadway Sand & Gravel, Inc.	City of Moraine	sand—building gravel—building	My-65
	Carpenter's Excavating	Carpenter's Excavating	City of Moraine	sand—unspecified	My-67
	Englewood Sand & Gravel Co., Inc.	Englewood Sand & Gravel Co., Inc.	Randolph	sand—portland cement concrete, building gravel—building, portland cement concrete	My 64
	H & H Utilities Co.	H & H Gravel	Miami	sand—other gravel—other	My-68
	Hilltop Basic Resources, Inc.	West Carrollton Aggregate Plant	Jefferson, Miami	sand—portland cement concrete, bituminous concrete, building gravel—portland cement concrete, bituminous concrete, fill, pavement base	My-19
	Miller Bros. Gravel, Inc.	Miller Bros. Gravel, Inc.	Butler	sand—portland cement concrete, building, filtration, masonry, fill gravel—building, portland cement concrete, filtration, fill	My-52
	Northmont Sand & Gravel Co.	Northmont Sand & Gravel Co.	Randolph	sand—building gravel—building	My-49
	Partin Sand & Gravel	Partin Sand & Gravel	Wayne	gravel—other	My 55
	Weidle Sand & Gravel, Inc.	Weidle Sand & Gravel, Inc.	German	sand—building gravel—building	My-41
Morgan	Chesterhill Stone Co.	Plant #2	Windsor	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing	Mon-588
Morrow	Chesterville Sand & Gravel Co., Inc.	Chesterville Sand & Gravel Co., Inc.	Chester	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing, filtration, ice control, landscaping	Mw-10
Muskingum	Cox Gravel, Inc.	Jennings-Lacy	Cass	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing, filtration, ice control gravel—portland cement concrete, bituminous concrete, road construction, resurfacing	Mum-799
		Prospect	Cass	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing, filtration, ice control gravel—portland cement concrete, bituminous concrete, road construction, resurfacing	Mum-863
	Lazy Acre Farms, Inc.	Lazy Acre Farms, Inc.	Harrison	sand—building gravel—building, road construction, resurfacing	Mum-261
	Luburgh Construction Co.	Luburgh Construction Co.	Falls	sand—unspecified	Mum-267
	Salt Creek Materials, Inc.	Salt Creek Materials, Inc.	Perry	sand—unspecified gravel—unspecified	Mum-220
		Salt Creek Materials, Inc.	Washington	sand—unspecified gravel—unspecified	Mum-216
Pickaway	American Aggregates Corp.	Circleville #616	Circleville	sand—road construction, resurfacing gravel—road construction, resurfacing	Pky-1
Pike	Chattin Concrete	Chattin Concrete	Seal	sand—portland cement concrete, building gravel—building, filtration	Pke-23
	Gregory Materials Co.	Plant #1	Scioto	sand—portland cement concrete, building, road construction, resurfacing gravel—building, filtration	Pke-30
	Standard Slag Co.	Cutlip	Scioto	sand—portland cement concrete, bituminous concrete, building gravel—portland cement concrete, bituminous concrete, road construction, resurfacing	Pke-24

Portage	Aurora Sand & Gravel Co.	Aurora Sand & Gravel Co.	Aurora	sand—road construction, resurfacing gravel—road construction, resurfacing, other	Pe-84
	Beck Sand & Gravel, Inc.	Beck Sand & Gravel, Inc.	Shalersville	sand—unspecified gravel—unspecified	Pe-50
	Karl Brugmann Sand & Gravel, Inc.	Karl Brugmann Sand & Gravel, Inc.	Shalersville	sand—building gravel—building	Pe-15
	Oscar Brugmann Sand & Gravel, Inc.	Oscar Brugmann Sand & Gravel, Inc.	Shalersville	sand—unspecified gravel—unspecified	Pe-9
	Charlestown Sand & Gravel Co.	Charlestown Sand & Gravel Co.	Charlestown	sand—unspecified gravel—unspecified	Pe-17
	R. A. Cruise Sand & Gravel, Inc.	R. A. Cruise Sand & Gravel, Inc.	Franklin, Ravenna	sand—building, road construction, resurfacing gravel—building	Pe-45
	Hilltop Aggregate, Inc.	Hilltop Aggregate, Inc.	Suffield	sand—other gravel—other	Pe-56
	Warner L. Hughes, Inc.	Hughes Pit	Suffield	sand—fill	Pe-76
	Jefferson Materials Co.	Howitt	Streetsboro	sand—road construction, resurfacing, gravel—road construction, resurfacing	Pe-63
	Karg Sand & Gravel Co.	Karg Sand & Gravel Co.	Brimfield	sand—other gravel—driveway use	Pe-77
		Karg Sand & Gravel Co.		sand—fill gravel—driveway use	Pe-83
	Lakeside Sand & Gravel Co.	Lakeside Sand & Gravel Co.	Shalersville	sand—portland cement concrete gravel—building	Pe-40
	Miller Sand & Gravel Co.	Miller Sand & Gravel Co.	Windham	sand—building, fill gravel—building, fill	Pe-39
	Northern Ohio Materials, Inc.	Northern Ohio Materials, Inc.	Streetsboro	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Pe-85
	Schloss Paving Co.	Schloss Paving Co.	Mantua	sand—bituminous concrete gravel—bituminous concrete	Pe-60
	Sober Sand & Gravel Co.	Sober Sand & Gravel Co.	Rootstown	sand—building, fill gravel—building	Pe-18
	Solon Excavators Sand & Gravel, Inc.	Solon Excavators Sand & Gravel, Inc.	Shalersville	sand—building gravel—building	Pe-36
	Standard Slag Co.	Shalersville	Shalersville	sand—portland cement concrete, bituminous concrete, building gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing	Pe-68
Preble	Wysong Gravel Co.	Camden Plant	Somers	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing	Pre-4
		West Alexandria Plant	Twin	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing	Pre-6
Richland	Bolin & Bartley, Inc.	Bolin & Bartley Sand & Gravel	Weller	sand—road construction, resurfacing, unspecified gravel—building, unspecified	Rd-20
	D. H. Bowman & Sons, Inc.	D. H. Bowman & Sons, Inc.	Jefferson	sand—portland cement concrete, fill, pipe bedding gravel—building, portland cement concrete, road construction, resurfacing, filtration, fill, pipe bedding	Rd-4
	Ganges Gravel	Ganges Gravel	Cass	gravel—building	Rd-18
	John Garber Materials, Inc.	John Garber Materials, Inc.	Troy	sand—foundry gravel—building	Rd-14
	Mohican Sand & Gravel, Inc.	Mohican Sand & Gravel, Inc.	Monroe	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing, filtration, fill	Rd-5
Ross	Three Locks Construction Co.	N-3	Scioto	sand—portland cement concrete, bituminous concrete, building, ice control, fill gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing, filtration	Rs-19
Scioto	Scioto Valley Resources	Scioto Valley Resources Division	Valley	sand—portland cement concrete, masonry gravel—road construction, resurfacing	So-100
	Standard Slag Co.	Haverhill	Green	sand—portland cement concrete, bituminous concrete gravel—building, road construction, resurfacing	So-79
Seneca	Wright Sand	Wright Sand	Eden	sand—fill gravel—fill	Sa 11

[1]This mine was operated 1st and 2nd quarters 1987 by Woodville Concrete Corp. and 3rd and 4th quarters by Fenner Sand & Gravel.

1987 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY—Continued

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Shelby	Fleckenstein Farm Gravel Pit	Fleckenstein Farm Gravel Pit	McLean	sand—fill gravel—fill	Shy-12
	Miami River Stone Co.	Miami River Stone Co.	Orange	gravel—bituminous concrete, road construction, resurfacing	Shy-17
	Sidney Sand & Gravel Co.	Milligan & Milligan-Washington Twp. Pit	Washington	sand—other gravel—other	Shy-13
	Spring Creek Corp.	Jones Deposit	Washington	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing gravel—portland cement concrete, bituminous concrete, road construction, resurfacing	Shy 18
Stark	Canton Aggregate	Canton Aggregate	Jackson	sand—bituminous concrete, other gravel—portland cement concrete, bituminous concrete, other	Sk-689
		Canton Aggregate	Plain	sand—portland cement concrete, bituminous concrete, other gravel—portland cement concrete, bituminous concrete, other	Sk-681
	A. J. Diana Sons, Inc.	Neidert Pit	Lawrence	sand—unspecified gravel—unspecified	Sk-694
	Hartville Sand & Gravel, Inc.	Hartville Sand & Gravel, Inc.	Lake	sand—portland cement concrete, building, road construction, resurfacing gravel—portland cement concrete, road construction, resurfacing, filtration	Sk-182
	Heiser Sand & Gravel	Heiser Sand & Gravel	Jackson	sand—building gravel—building, fill	Sk-688
	Massillon Washed Gravel Co.	Massillon Washed Gravel Co.	Bethlehem	sand—building, road construction, resurfacing gravel—portland cement concrete, road construction, resurfacing	Sk-607
	Oster Sand & Gravel, Inc.	Oster Sand & Gravel, Inc.	Jackson, Perry	sand—bituminous concrete, building, ice control, fill gravel—building, bituminous concrete, road construction, resurfacing, ice control, fill	Sk-165
	Stone Products, Inc.	Stone Products, Inc.	Perry	gravel—road construction, resurfacing	Sk-190
Summit	Flesher Sand & Gravel, Inc.	Flesher Sand & Gravel, Inc.	Norton	sand—foundry, building, road construction, resurfacing, fill gravel—building, landscaping, driveway use	St-52
	H. M. Miller Construction Co.	Krumroy Pit	Springfield	sand—fill gravel—fill	St-46
	Northern Ohio Materials, Inc.	Northern Ohio Materials, Inc.	Hudson	sand—building	St-41
	Portage Lakes Sand & Gravel Co.	Portage Lakes Sand & Gravel Co.	Coventry	sand—building gravel—building	St-53
		Portage Lakes Sand & Gravel Co. Plant #4	Green	sand—building, unspecified gravel—building, unspecified	St-33
	Riverside Sand & Gravel Co., Inc.	Riverside Sand & Gravel Co., Inc.	Stow	sand—building, road construction, resurfacing, other gravel—building, road construction, resurfacing, other	St-24
	Rubber City Sand & Gravel Co.	Rubber City Sand & Gravel Co.	Green	sand—building gravel—building	St-9
Trumbull	Samco, Inc.	Springbrook	Mesopotamia	sand—portland cement concrete, building, road construction, resurfacing gravel—building, road construction, resurfacing	Tl-12
Tuscarawas	Benco Leasing, Inc.	Goshen 416 Site	Goshen	sand—portland cement concrete, fill gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing, filtration, other	Ts-1976
	Heiser Stone Co.	Heiser Stone Co.	Franklin	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Ts-1977
	Oster Sand & Gravel, Inc.	Oster Sand & Gravel, Inc.	Lawrence	sand—bituminous concrete, building, ice control, fill gravel—building, bituminous concrete, road construction, resurfacing, ice control, fill	Ts-1852
	Soehnlen Bros. Sand & Gravel Co.	Soehnlen Bros. Sand & Gravel Co.	Wayne	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Ts-1826
	Spring Industries, Inc.	County Line Plant	Franklin	sand—unspecified gravel—unspecified	Ts-1788
		Midvale Pit	Goshen	sand—portland cement concrete, bituminous concrete, building, other gravel—building, portland cement concrete, bituminous concrete, other	Ts-1771

	Stewart & Reichman, Inc.	Stewart & Reichman, Inc.	Warwick	sand—building, road construction, resurfacing gravel—road construction, resurfacing	Ts-111
	Stocker Sand & Gravel Co.	Stocker Sand & Gravel Co.	Clay	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Ts-69
		Stocker Sand & Gravel Co.	Clay	sand—building, road construction, resurfacing gravel—building, road construction, resurfacing	Ts-125
Warren	American Aggregates Corp.	Franklin #417	Franklin	sand—road construction, resurfacing gravel—road construction, resurfacing	Wan-38
	Bellbrook Gravel Co.	Bellbrook Gravel Co.	Wayne	sand—unspecified gravel—unspecified	Wan 24
	D & L Browning Excavating, Inc.	River Sand & Gravel	Salem	sand—road construction, resurfacing gravel—road construction, resurfacing	Wan-B[10]
	J & J Davenport	J & J Davenport	Salem	sand—other gravel—other	Wan-47
	Dravo Basic Materials Co., Inc.	South Lebanon Plant	Union	sand—road construction, resurfacing gravel—road construction, resurfacing	Wan-41[11]
	L & I Trucking & Construction, Inc.	L & I Trucking & Construction, Inc.	Hamilton	sand—unspecified gravel—unspecified	Wan-8
	Carl E. Oeder & Sons Sand & Gravel	Carl E. Oeder & Sons Sand & Gravel	Union	sand—unspecified gravel—unspecified	Wan-41[12]
	Watson Gravel, Inc.	Mason Pit	Union	sand—fill gravel—building, road construction, resurfacing	Wan-10
Washington	Briggs Sand & Gravel, Inc.	Briggs Sand & Gravel, Inc.	Warren	sand—building gravel—road construction, resurfacing	Wn-508
	Chesterhill Stone Co.	Plant #3	Adams	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing, other gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing, other	Wn-56
	Trout Sand & Gravel Co.	Trout Sand & Gravel Co.	Warren	sand—building gravel—building	Wn-510
	Union Slag Corp.	Plant #3	Muskingum	sand—portland cement concrete, bituminous concrete, road construction, resurfacing, filtration gravel—building, bituminous concrete, road construction, resurfacing, filtration, fill	Wn-43
		Plant #2	Muskingum	sand—bituminous concrete, building, road construction, resurfacing, filtration, fill gravel—building, portland cement concrete, bituminous concrete, road construction, resurfacing, filtration, fill	Wn-44
Wayne	Prairie Lane Sand & Gravel Co.	Prairie Lane Sand & Gravel Co.	Franklin	sand—unspecified gravel—unspecified	We-11
	Rupp Construction, Inc.	Rupp Construction, Inc.	Baughman	sand—portland cement concrete, bituminous concrete gravel—building, portland cement concrete, bituminous concrete	We-7
	Zollinger Sand & Gravel Co.	Zollinger Sand & Gravel Co.	Chippewa	sand—unspecified gravel—unspecified	We-15
Williams	Stoneco	South Montpelier	Superior	sand—portland cement concrete, bituminous concrete, other gravel—building, other	Ws-6
	Weber Sand & Gravel, Inc.	Weber Sand & Gravel, Inc.	St. Joseph	sand—portland cement concrete, building, filtration gravel—building, filtration, farm use, fill	Ws-11
Wyandot	H & M Sand & Gravel Co.	H & M Sand & Gravel Co.	Eden	sand—portland cement concrete, bituminous concrete, building, road construction, resurfacing, filtration gravel—building, filtration, fill	Wt-5
		H & M Sand & Gravel Co.	Eden	sand[13]	Wt-15
	Kirby's Sand & Gravel, Inc.	Kirby's Sand & Gravel, Inc.	Eden	sand—building, road construction, resurfacing, filtration gravel—building, bituminous concrete, filtration	Wt-17

[10]No mine number has been assigned by the Division of Mines.
[11]See also Carl E. Oeder & Sons Sand & Gravel.
[12]See also Dravo Basic Materials Co., Inc.
[13]Production only, no sales.

1987 OHIO DIRECTORY OF SANDSTONE/CONGLOMERATE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of quarry	Township	Geological unit	Type and principal use	State mine number
Carroll	Conotton Valley Quarries Co.	Conotton Valley Quarries Co.	Lee		dimension stone—finished	Cl-102
Columbiana	Beaver Creek Resources, Inc.	Beaver Creek Resources, Inc.	Salem		crushed or broken stone—base material	Ca-855
Coshocton	Briar Hill Stone Co.	Quarry #26	Monroe	Massillon (Pennsylvanian)	dimension stone—rough architectural	Cn-13
		Quarry #32	Monroe	Massillon (Pennsylvanian)	dimension stone—rough architectural	Cn-686
		Quarry #24	Monroe	Massillon (Pennsylvanian)	dimension stone—rough architectural	Cn-692
		Quarry #54	Monroe	Massillon (Pennsylvanian)	dimension stone—rough architectural	Cn-809
		Quarry #55	Monroe	Massillon (Pennsylvanian)	dimension stone—rough architectural	Cn-815
		Quarry #18	New Castle	Massillon (Pennsylvanian)	dimension stone—rough construction	Cn-695
		Quarry #3	Tiverton	Massillon (Pennsylvanian)	dimension stone—refractory, rough architectural	Cn-659
Erie	Cleveland Quarries Co.	Birmingham Quarry	Florence	Berea (Mississippian)	dimension stone—rubble, grindstones, finished, curbing, flagging	Ee-21
Geauga	Best Sand Corp.	Best Sand Corp.	Munson	Sharon conglomerate (Pennsylvanian)	crushed or broken stone—foundry sand, glass sand, metallurgical pebble, refractory, aggregate, fire and furnace sand, engine sand, frac sand, trap sand, sandblasting, ice control, filler sand	Gea-3
	Best Silica Co.	Best Silica Co.	Bainbridge	Sharon conglomerate (Pennsylvanian)	crushed or broken stone—foundry sand, aggregate, trap sand, manufacturing	Gea-36
	R. W. Sidley, Inc.	Thompson Pit	Thompson	Sharon conglomerate (Pennsylvanian)	crushed or broken stone—foundry sand, glass sand, metallurgical pebble, refractory, riprap, aggregate, engine sand, concrete aggregate, sandblasting, filtration, traction dimension stone—rough construction, grindstones, rough architectural, fill	Gea-1
Holmes	Briar Hill Stone Co.	Quarry #31	Knox	Massillon (Pennsylvanian)	dimension stone—rough architectural	Hs-49
Huron	Mesenburg Bros., Inc.	Mesenburg Bros., Inc.	Townsend	Berea (Mississippian)	crushed or broken stone—riprap	Hrn-8
Knox	Briar Hill Stone Co.	Quarry #6	Jefferson	Massillon (Pennsylvanian)	dimension stone—rough architectural	Kx-12
	Central Silica Co.	Millwood Sand Division	Union	Black Hand (Mississippian)	crushed or broken stone—foundry sand, glass sand, silica flour, engine sand, frac sand, other	Kx-1
Lorain	Cleveland Quarries Co.	Amherst Quarries	Amherst	Berea (Mississippian)	crushed or broken stone—aggregate dimension stone—rubble, grindstones, finished, curbing, flagging	Ln-3
Mahoning	Gwin Contracting Co.	Gwin Contracting Co.	Milton	Sharon sandstone (Pennsylvanian)	crushed or broken stone—fractured laminated sand rock	Mg-62
Perry	Central Silica Co.	Central Silica Co.	Hopewell	Massillon (Pennsylvanian)	crushed or broken stone—foundry sand, glass sand, silica flour, other	Py-202
Ross	Southern Silica, Inc.	Southern Silica, Inc.	Jefferson	Sharon conglomerate (Pennsylvanian)	crushed or broken stone—foundry sand, glass sand, polishing/grinding sand, engine sand, fill dimension stone—rough construction	Rs-16
Scioto	Waller Bros. Stone Co.	Inskeep Quarry	Rush		dimension stone—rough construction	So-48
		Crabtree Quarry	Morgan, Rush, Union	Buena Vista (Mississippian)	dimension stone—rough construction	So-76
Stark	Kohl Industries	Black Hawk	Bethlehem, Pike		crushed or broken stone—riprap	Sk-217
Trumbull	Hard Rocks, Inc.	Hard Rocks, Inc.	Kinsman		crushed or broken stone—aggregate	Tl-13
Tuscarawas	Kimble Clay & Limestone Co.	Kimble Clay & Limestone Co.	Dover		crushed or broken stone—refractory, riprap, construction	Ts-1818
	U.S. Silica Co.	Coxey Works	Wayne	Massillon (Pennsylvanian)	crushed or broken stone—foundry sand, fire and furnace sand, hot top rings, exothermics	Ts-1660
Washington	Alan Stone Co., Inc.	Alan Stone Co., Inc.	Warren		crushed or broken stone—riprap	Wn-45

1987 OHIO DIRECTORY OF CLAY-MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of mine	Township	Geological unit	Principal use	State mine number
Auglaize	Sandkuhl Tile Co.	Sandkuhl Tile Co.	Salem	Pleistocene glacial clay	common clay products	Ae-7
Greene	Southwestern Portland Cement Co.	Southwestern Portland Cement Co.	Bath	till	cement manufacture	Ge-8
Hocking	General Clay Products Corp.	General Clay Products Corp.	Falls Gore	No. 5 fire clay (Pennsylvanian)	vitrified products	Hg-205
Holmes	Clark Clay Co.	Clark Clay Co.	Hardy	Putnam Hill (Pennsylvanian)	common clay products, plugging clay	Hs-56
	Holmes Limestone Co.	241 Plant	Hardy	Brookville & Putnam Hill (Pennsylvanian)	common clay products	Hs-67
Jackson	Cedar Heights Clay Co.	Cedar Heights Clay Co.	Madison	No. 5 clay (Pennsylvanian)	refractories	Jkn-1001
		Cedar Heights Clay Co.	Madison	No. 5 clay (Pennsylvanian)	refractories	Jkn-1007
	Waterloo Coal Co.	Zoar	Bloomfield, Madison	Kittanning (Pennsylvanian)	common clay products	Jkn-367
Lawrence	American Olean Tile Co.	Jefferys	Elizabeth	No. 5 clay (Pennsylvanian)	common clay products	Le-440
	Belville Mining Co., Inc.	Brady Creek	Washington		common clay products	Le-403
Muskingum	Bowerston Shale Co.	Bowerston Shale Co.	Jackson	Flint Ridge & Middle Mercer (Pennsylvanian)	vitrified products	Mum-776
	Dennis Clay Co.	Corder Mine	Newton	No. 5 clay (Pennsylvanian)	common clay products, oil-well-plugging material	Mum-D[1]
Paulding	Lafarge Corp.	Paulding Quarry	Crane	Detroit River & upper Dundee (Devonian)	cement manufacture	Pg-1
Perry	Dennis Clay Co.	Olson Mine	Harrison	No. 5 clay (Pennsylvanian)	common clay products	Py-296
		Browning-Bateson-Ferguson-Hall	Harrison	No. 6 clay (Pennsylvanian)	road base, plugging clay	Py-331
	Nutter Bros. Coal Co., Inc.	Nutter Bros. Coal Co., Inc.	Monday Creek		common clay products	Py-259
Putnam	Miller Bros. Clay Works, Inc.	Miller Bros. Clay Works, Inc.	Monterey		common clay products	Pm-9
Stark	Holmes Limestone Co.	Bolivar Mine	Bethlehem	Brookville (Pennsylvanian)	common clay products	Sk-235
	Kohl Industries	Black Hawk	Bethlehem, Pike	Brookville, Putnam Hill, Vanport, & Lower Kittanning (Pennsylvanian)	refractories, reclamation	Sk-217
	Romany Ceramics, Inc.	Romany Ceramics, Inc.	Pike	No. 4 clay (Pennsylvanian)	glazed ware	Sk-170
Tuscarawas	Belden Brick Co.	Wallick Pit	Franklin, Wayne	Brookville (Pennsylvanian)	common clay products	Ts-1841
		Moomaw Pit	Sugar Creek	Brookville (Pennsylvanian)	common clay products	Ts-1517
		Finzer-Belden	Sugar Creek	Brookville & Lower Kittanning (Pennsylvanian)	common clay products	Ts-1646
		Shanesville Pit	Sugar Creek	Brookville (Pennsylvanian)	common clay products	Ts-1939
		Beagle Pit	Sugar Creek	Brookville (Pennsylvanian)	common clay products	Ts-1960
	Eberhart Coal, Inc.	Eberhart #2 Hott Strip	Dover	Lower Kittanning (Pennsylvanian)	refractories	Ts-1882
		Eberhart #2 Hott Strip	Lawrence	Lower Kittanning (Pennsylvanian)	glazed ware	Ts-1994
	Kimble Clay & Limestone Co.	Kimble Clay & Limestone Co.	Dover	Vanport (Pennsylvanian)	common clay products, refractories, construction	Ts-1818
	L & M Minerals, Inc.	Evans	Mill, Rush, Warwick		common clay products	Ts-1884
		Spring	Mill, Warwick		common clay products	Ts-1982
	Stone Creek Brick Co.	Stone Creek Clay Mine	Jefferson		vitrified products	Ts-1557
	Zoar Mining Co.	Zoar Mining Co.	Sandy		common clay products	Ts-538
		Zoar Mining Co.	Sandy		common clay products	Ts 540
Wayne	Orrville Tile & Flue Lining, Inc.	Orrville Pit	Green		common clay products	We-9
Wyandot	Claycraft Co.	Claycraft Plant #1 Clay Pit	Crane	alluvial clay	common clay products	Wt-7

[1]No mine number has been assigned by the Division of Mines.

1987 OHIO DIRECTORY OF SHALE-MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of mine	Township	Geological unit	Principal use	State mine number
Columbiana	Summitville Tiles, Inc.	Summitville Tiles, Inc.	Franklin		common clay products	Ca-205
Coshocton	General Clay Products Corp.	Drescher Pit	Crawford	Lower Kittanning (Pennsylvanian)	vitrified products, unspecified	Cn-787
Cuyahoga	Hydraulic Press Brick Co.	Hydraulic Press Brick Co.	City of Independence	Chagrin (Devonian)	lightweight aggregate	Cya-19
Franklin	Claycraft Co.	Claycraft Plant #4 Shale Pit	Jefferson		common clay products	Fn-1
Harrison	Bowerston Shale Co.	Bowerston Shale Co.	Monroe	Conemaugh (Pennsylvanian)	vitrified products	Hn-152
Hocking	General Clay Products Corp.	General Clay Products Corp.	Falls Gore	No. 5 fire clay (Pennsylvanian)	vitrified products	Hg-205
Holmes	General Clay Products Corp.	Troyer Pit	Clark	Lower Kittanning (Pennsylvanian)	vitrified products	Hs-77
Lawrence	Lone Star Marquette	Bear Run	Decatur	Vanport (Pennsylvanian)	cement manufacture	Le-308
Licking	Bowerston Shale Co.	Bowerston Shale Co.	Hanover	Logan (Mississippian)	vitrified products	Lg-501
Mahoning	SME Bessemer Cement, Inc.	Quarry #8	Poland	Vanport (Pennsylvanian)	cement manufacture	Mg-608
Marion	Glen-Gery Corp.	Glen-Gery Corp.	Tully	Bedford (Mississippian)	common clay products	Mn-7
Medina	General Clay Products Corp.	General Clay Products Corp.	Wadsworth		common clay products	Ma-6
Noble	Towne Square Products	Towne Square Products	Buffalo		common clay products	Ne-66
Perry	Dennis Clay Co.	Browning-Bateson-Ferguson-Hall	Harrison	Pennsylvanian	plugging clay	Py-331
Stark	Kohl Industries	Black Hawk	Bethlehem, Pike	Brookville, Putnam Hill, Vanport, & Lower Kittanning (Pennsylvanian)	landfill	Sk-217
	Romany Ceramics, Inc.	Romany Ceramics, Inc.	Pike		glazed ware	Sk-170
Tuscarawas	Belden Brick Co.	Wallick Pit	Franklin, Wayne	Brookville & Strasburg (Pennsylvanian)	common clay products	Ts-1841
		Moomaw Pit	Sugar Creek	Brookville & Tionesta (Pennsylvanian)	common clay products	Ts-1517
		Finzer-Belden	Sugar Creek	Brookville & Tionesta (Pennsylvanian)	common clay products	Ts-1646
		Shanesville Pit	Sugar Creek	Brookville (Pennsylvanian)	common clay products	Ts-1939
	Kimble Clay & Limestone Co.	Kimble Clay & Limestone Co.	Dover	Vanport (Pennsylvanian)	common clay products, construction	Ts-1818
	L & M Minerals, Inc.	Evans	Mill, Rush, Warwick		common clay products	Ts-1884
		Holmes	Mill, Rush		common clay products	Ts-1981
		Spring	Mill, Warwick		common clay products	Ts-1982
	Stone Creek Brick Co.	Stone Creek Shale Mine	Jefferson		vitrified products	Ts-1558
	Zoar Mining Co.	Zoar Mining Co.	Sandy		common clay products	Ts-538

1987 OHIO DIRECTORY OF GYPSUM-MINE OPERATORS REPORTING SALES OR PRODUCTION

County	Name of operator	Name of mine	Township	Geological unit	State mine number
Ottawa	Celotex Corp.	American #2	Portage	Silurian	Oa-2

1987 OHIO DIRECTORY OF SALT-MINE AND SALT-BRINING-PLANT OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of mine	Township	Geological unit and product	State mine number
Cuyahoga	International Salt Co.	Cleveland Mine	City of Cleveland	Salina (Silurian)—rock salt	Cya-30
Lake	Morton Thiokol, Inc.	Fairport Mine	Painesville	Salina (Silurian)—rock salt	Lke-6
Licking	R. H. Penick Co.	R. H. Penick Co.	Newark	"Newburg" (Silurian)—natural brine	Lg-45
Summit	Diamond Crystal Salt Co.	Diamond Crystal Salt Co.	Coventry	Salina (Silurian)—artificial brine	St-9127
Wayne	Morton Thiokol, Inc.	Morton Salt Well Field	Milton	Salina (Silurian)—artificial brine	We-9129

1987 OHIO DIRECTORY OF PEAT-MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of mine	Township	Type and principal use	State mine number
Champaign	Sphagnum Moss Peat Farm	Sphagnum Moss Peat Farm	Harrison	mulch, humus—worm culture	Cpn-9
Williams	Lingvai Peat Co.	Lingvai Peat Co.	Center	mulch	Ws-17
Wyandot	Kalo, Inc.	Humus Plant	Crawford	humus—legume inoculation	Wt-14

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